

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 102nd session of the Scientific Council and on the major results of JINR's activity in 2007.

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 recognizes the significant scientific accomplishments of JINR scientists in 2007 in the fields of particle physics, nuclear physics, and condensed-matter physics, as well as the progress in the areas of information technology, innovative developments and educational activities.

The Scientific Council is pleased to learn about the decision of the Committee of Plenipotentiaries to increase the JINR budget by 24% in 2008, and about the planned increase of the average salary of the Institute staff in April 2008, presented in the report by Director A. Sissakian.

The Scientific Council notes the decision of the Committee of Plenipotentiaries to approve the proposal of the Institute Directorate concerning the establishment of the Veksler and Baldin Laboratory of High Energy Physics, based on the merger of VBLHE and LPP, in order to utilize better their 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. The Scientific Council stresses the need to accomplish this merger in a way that maintains the high motivation of the talented scientists and technical staff of both laboratories. The Scientific Council would like to be informed at its next session about the progress of the organization of the new Laboratory.

The Scientific Council recommends that the JINR Directorate prepare a well-documented NICA/MPD project for its presentation to the relevant international advisory bodies such as ECFA or NuPECC in order gain international credibility, and to explore the possibility of integrating this project in the international accelerator development programme.

The Scientific Council emphasizes that, as part of the effort to optimize the staffing of JINR, the JINR Directorate should take deliberate actions to attract and retain the best young scientists from the Member States of the Institute. This is essential to secure the future of JINR.

The Scientific Council appreciates the efforts of the Directorate towards optimization of the JINR partnership programme with research laboratories of the Member States and other countries, as well as international scientific research organizations, based on their enhanced involvement in the research activities at Dubna and on attraction of investments for the development of the JINR basic facilities.

The Scientific Council notes the importance of the agreements signed by JINR, in December 2007, with the Russian Academy of Sciences, the M. Lomonosov Moscow State University, and the National Academy of Sciences of Ukraine, concerning further development of cooperation in the areas of scientific research and education.

The Scientific Council notes with interest the plan being considered by the Institute Directorate together with the Russian Research Centre “Kurchatov Institute” concerning the establishment, in Dubna, of a JINR-based International Nanotechnology Centre of the Member States, and expects reports on its scientific aspects as this plan develops.

II. Considerations concerning the operation and development of the JINR basic facilities

The Scientific Council highly appreciates the strong emphasis being placed by the directorates of JINR and its laboratories on the operation and development of the JINR basic facilities.

The Scientific Council takes note of the progress reports on current activities: “Operation of the facilities in 2007” presented by JINR Chief Engineer G. Shirkov, “Status of modernization of the IBR-2 reactor” presented by FLNP Chief Engineer A. Vinogradov, “Development of the neutron spectrometer complex for the IBR-2M reactor” presented by FLNP Condensed Matter Department Head A. Balagurov, “Development of the FLNR cyclotron complex” presented by FLNR Chief Engineer G. Gulbekian, “IREN: status and schedule” presented by FLNP Deputy Director V. Shvetsov, “Nuclotron-M project” presented by JINR Deputy Chief Engineer G. Trubnikov, and “Activity for the NICA/MPD project” presented by VBLHE Director V. Kekelidze.

The Scientific Council congratulates the IBR-2 reactor team for its progress in modernizing the reactor, and appreciates the progress made in recovering from the accident to the IREN klystron. The Scientific Council also appreciates the progress being made in the Nuclotron-M upgrade programme and the planning for the NICA/MPD project.

III. JINR–CERN cooperation

The Scientific Council appreciates the long-standing and close cooperation between JINR and the European Organization for Nuclear Research (CERN). JINR has been successfully involved in many particle-physics research programmes at CERN in the past, and has been participating broadly in the LHC project, fulfilling its important obligations for the ATLAS, CMS, and ALICE experiments. In addition, JINR and CERN also have several common educational projects, including the organization of the European Schools of High-Energy Physics, conferences, workshops and exhibitions, in particular the joint exhibition “Science Bringing Nations Together”.

The Scientific Council takes note of the information, presented by JINR Chief Scientific Secretary N. Russakovich, about the preparatory work on the JINR–CERN partnership programme for the next five years.

The Scientific Council looks forward to the continuation of the mutually beneficial collaboration between these two international organizations.

IV. Plans for JINR’s participation in the FAIR project

The Scientific Council notes the importance of the agreement signed by 11 participating countries (including Russia and some other Member States of JINR) about the start-up of the joint realization of the FAIR project in Darmstadt.

The Scientific Council takes note of the reports on the plans for JINR’s participation in the FAIR project, presented by VBLHE Deputy Director A. Kovalenko and DLNP Director A. Olchevski, concerning accelerator technology, spectrometers and physics issues.

The Scientific Council encourages further development of these activities, especially taking into account the complementarities of the FAIR and NICA projects, expecting synergies between them. The Scientific Council recognizes that JINR possesses much expertise applicable to the FAIR project, and urges that the appropriate balance be maintained between the NICA and FAIR projects.

V. Recommendations in connection with the PACs

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

Particle Physics Issues

The Scientific Council endorses the main lines of the JINR Programme of Particle and Relativistic Nuclear Physics Research proposed by the laboratories for the period

2008–2010 in accordance with the main provisions of the updated road map.

The Scientific Council appreciates the proposals made by BLTP for the programme targeting new physics searches in experiments at the LHC. It also supports the BLTP's proposals for the physics programmes of LHC experiments, as well as enhanced participation of this Laboratory in the modelling and future interpretation of LHC experimental data. The Scientific Council also notes the important role of BLTP in the preparation of the scientific part of the NICA/MPD project and recommends that this activity be continued.

The Scientific Council highly appreciates the work done by the Independent Expert Panel for the Nuclotron-M project, chaired by Professor B. Sharkov (ITEP, Moscow), which prepared a comprehensive review of this project for discussion by the PAC. The Scientific Council concurs with the PAC's recommendation to approve the Nuclotron-M project for execution by the end of 2010.

The Scientific Council strongly endorses the PAC's recommendation that the Directorate appoint a standing Machine Advisory Committee, comprised of independent experts, for the Nuclotron-M/NICA accelerator complex. This committee should meet two times per year to review progress towards achieving the milestones of the Nuclotron-M upgrade, and the chairman of this advisory committee should make regular reports to the Directorate and the PAC.

The Scientific Council looks forward to further elaboration of the compelling spin and heavy-ion physics programmes that will be accomplished at NICA. This should be documented in a white paper suitable for international review.

The Scientific Council also looks forward to hearing from the PAC the report it has commissioned from the particle physics community on its experience in using the JINR Central Information and Computing Centre.

The Scientific Council supports the recommendations of the PAC on the continuation of the current activities beyond 2007, as outlined in the PAC report.

The Scientific Council shares the concern of the PAC that its recommendation, taken as early as November 2002, to include the procedure for treating requests for extensions of ongoing experiments in the "JINR Rules of Proposal Preparation", has not yet been implemented and that this procedure has not been defined in the existing rules. The Scientific Council agrees that such extensions should be treated similarly to the approval of new projects, and stresses the importance of implementing this recommendation as it concerns the interests of JINR's three PACs.

Nuclear Physics Issues

The Scientific Council shares the general statement of the PAC that heavy-ion physics at low and high energy addresses fundamental problems that will require continuing research for several decades. Examples of important applications for practical life and society are provided by tumor therapy with heavy-ion and proton beams.

The Scientific Council endorses the FLNR programme of scientific research in heavy-ion physics planned for 2008. It supports the continuation of the traditional trends in the studies carried out at the Laboratory, in particular the investigations of chemical properties of superheavy elements, of properties of transfermium elements, light exotic nuclei near and beyond the drip line, and the development of the accelerators and main experimental set-ups of the Laboratory. The Scientific Council appreciates the results of the U400M cyclotron upgrade performed in 2007, which is essential for the acceleration of low-energy beams at this facility. Assembling the new experimental set-ups at the cyclotron U400M will ensure non-stop experiments to study superheavy elements during the modernization of U400 expected at the end of 2009.

The Scientific Council looks forward to achieving the expected results on the completion of the first stage of IREN project in the current year. The parameters of the IREN facility (Phase I) could permit performing accurate measurements of the neutron cross section addressed to astrophysics and medical applications.

The Scientific Council supports the PAC's recommendation on the new project "Deep underwater muon and neutrino detector at Lake Baikal (project BAIKAL)", which aims at increasing the participation of DLNP in many respects including the preparation of the next-generation 1 km³ detector. It considers this activity to be potentially of great importance for the neutrino programme of DLNP, and requests from the PAC a report on its competitiveness in the general world context.

The Scientific Council invites the authors of the LEPTA project to update the research programme at this facility and present it to the PAC for consideration.

Condensed Matter Physics Issues

The Scientific Council is pleased to note that work for the modernization of the IBR-2 reactor is well under way and according to schedule. The success of this activity is due to its well-organized management, the commitment and high sense of responsibility of the reactor team, as well as the comprehensive support to the modernization programme that is being given by the FLNP and JINR directorates. The Scientific Council also notes the high level of expertise of the personnel participating in the IBR-2 modernization work and strongly recommends that all necessary actions be taken to preserve the accumulated

experience and to transfer it to younger staff.

The Scientific Council supports the PAC's recommendation on the extension of the theme "Upgrade of the IBR-2 Complex" until 2010 and the plan for the remaining activities at the reactor, taking into account its previous recommendations on the priority work for construction of the complex of cryogenic moderators.

The Scientific Council notes the start in 2007 of the programme for the upgrade of the IBR-2 neutron spectrometer complex. The Scientific Council reiterates its strong recommendation on the adequate organizational and financial support for this programme. Its implementation is extremely important, along with the upgrade of the reactor, to secure the effective and innovative exploitation of the IBR-2M reactor from 2010 onwards.

The Scientific Council appreciates the high level of activities in condensed-matter sciences pursued by FLNP research groups, in spite of the shut-down of the IBR-2 reactor for modernization. In 2007 important scientific results were obtained in the fields of complex magnetic oxides, magnetic fluids, multilayer superconducting films and lipid multilayers, as well as in applied investigations.

The Scientific Council also appreciates the progress in implementing the scientific programme of the Laboratory of Radiation Biology. It notes with interest the ongoing construction of a state-of-the-art confocal microscope by the SOLAR company (Belarus) for LRB. This instrument may be a unique basic facility for a number of JINR Member States in the fields of molecular biology, cell biology, radiation genetics and other applications.

The Scientific Council congratulates the PAC on holding poster sessions with young scientists, and encourages the other PACs to hold similar poster sessions.

Common Issues

The Scientific Council appreciates the successful implementation of the Educational Programme pursued by the JINR University Centre. The motivation, education, and attraction of young people for modern science are of vital importance for the future of the Institute. The utmost care for and most active involvement in the education and training process should be a permanent task for the JINR Laboratories and research groups.

The Scientific Council encourages greater coordination of JINR activities in medical and biological sciences.

VI. General discussion

The Scientific Council recognizes the great potential of JINR in many scientific areas, and appreciates the efforts of the Directorate and Laboratories in developing facilities in Dubna. There are many areas of research in which JINR has unique capabilities and

possibilities. It urges the Committee of Plenipotentiaries to support these JINR activities.

The Scientific Council stresses the importance of maintaining a healthy balance between JINR's in-house facilities and its collaborations with other laboratories.

In view of the geographical location of JINR and the bulk of its Member States, the Scientific Council encourages the Directorate to seek better integration with other European research programmes and facilities in particle, nuclear and condensed matter physics. To this end, it suggests that the Directorate seek higher visibility in the European physics communities in these areas, and that JINR participate more fully in international coordination bodies such as ECFA and NuPECC.

The Scientific Council urges the Directorate to strengthen its efforts to encourage the largest possible number of qualified candidates to present themselves for election as Directors and Deputy Directors of the Laboratories, who should present to the Scientific Council their visions and management plans for the posts.

The Scientific Council encourages the Directorate to schedule restricted sessions of the Scientific Council, at which only its voting members would be present.

The Scientific Council requests the Directorate to make electronic copies of its documents available prior to its meetings.

VII. Memberships of the PACs

As proposed by the JINR Directorate, the Scientific Council appoints Professors C. Beck (IPHC, Strasbourg, France), V. Ostashko (INR, Kiev, Ukraine), and O. Zimmer (ILL, Grenoble, France) as new members of the PAC for Nuclear Physics for a term of three years. The Scientific Council thanks the outgoing members Professors H. Börner and A. Goverdovski for their very successful work in this PAC.

As proposed by the JINR Directorate, the Scientific Council appoints Professors P. Balgavý (Comenius University, Bratislava, Slovakia), L. Bottyán (KFKI, Budapest, Hungary), F. Currell (Queen's University, Belfast, United Kingdom), V. Kantser (ASM, Chisinau, Moldova), and A. Kuzmin (ISSP, Riga, Latvia) as new members of the PAC for Condensed Matter Physics for a term of three years. The Scientific Council thanks the outgoing members Professors R. Cywinski, F. Macášek, and D. Nagy for their very successful work in this PAC.

The Scientific Council expects to receive at its next session a report on the rotation of members in all the PACs.

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

The Scientific Council endorses the JINR Directorate’s proposal to award the title “Honorary Doctor of JINR” to Professors N. Kroó and H. Vartapetian, in recognition of their outstanding contributions to the advancement of science and the education of young scientists, and congratulates them.

IX. JINR prizes

The Scientific Council approves the Jury's recommendations on the JINR prizes for 2007 (Appendix).

The Scientific Council congratulates Professor A. Zichichi (INFN, Bologna, and CERN) on being awarded the 2007 B. Pontecorvo Prize for his fundamental contributions to the creation of the largest underground Gran Sasso National Laboratory and to the construction of large-scale facilities for experimental studies of solar and accelerator neutrinos.

X. Nominations

The Scientific Council elected by ballot Professor V. Ivanov as Director of the Laboratory of Information Technologies for a term of five years and Professor F. Šimkovic as Deputy Director of the Bogoliubov Laboratory of Theoretical Physics until the completion of the term of office of the BLTP Director.

The Scientific Council agrees with the proposal of the JINR Directorate to postpone the election for the position of a Deputy Director of the Frank Laboratory of Neutron Physics until one of the future sessions of the Scientific Council.

The Scientific Council announces the vacancy of the position of the Director of the Dzhelepov Laboratory of Nuclear Problems. The election for this position will take place at the 104th session of the Scientific Council.

XI. Appreciation

At its next meeting in March 2008, the JINR Committee of Plenipotentiaries is to appoint a new membership of the Scientific Council. Completing their five-year terms of duties, the present members of the Scientific Council wish to express their appreciation of the constructive atmosphere prevailing at the Council meetings.

The Scientific Council wishes the present Directorate of JINR further successful leadership of this international centre.

XII. Next session of the Scientific Council

The 104th session of the Scientific Council is planned to be held on 25–26 September 2008.

A. Sissakian
Chairman of the Scientific Council

I. Wilhelm
Co-chairman of the Scientific Council

N. Russakovich
Secretary of the Scientific Council