

I. General considerations

The Scientific Council appreciates the progress in implementing the decisions of the Committee of Plenipotentiaries of the Governments of the JINR Member States taken at the session in November 2012, as presented in the report by JINR Director V. Matveev.

The Scientific Council notes that the principal milestones of the Seven-Year Plan for the Development of JINR for 2010–2016 are reasonably consistent with the status of today's basic facilities and research programme of JINR. It regards as very important the task of updating the Seven-Year Plan, taking into account the current status of its implementation as well as recent new developments with the technical projects of the major basic facilities, especially NICA and DRIBs-III. The Scientific Council looks forward to being presented a detailed update of the plan at the next session in September 2013.

II. Recommendations on reported activities

The Scientific Council takes note of the analysis of the progress of the implementation of the Seven-Year Plan for the Development of JINR (2010–2016), presented by Vice-Director R. Lednický in the fields of particle physics and high-energy heavy-ion physics, and by Vice-Director M. Itkis in the fields of low- and intermediate-energy nuclear physics, nuclear physics with neutrons, and condensed matter physics.

On the whole, the most important results achieved in 2010–2012 are in line with the seven-year plan, a fact deserving high appreciation. An analysis of these results points to the need of making some adjustments in terms of financial support and time scales of individual projects. The Scientific Council looks forward to completing this work by its next session with a view of submitting an updated Plan for the Development of JINR for the years 2014–2016 and for the two subsequent years at the session of the Committee of Plenipotentiaries in November 2013 for approval. The Scientific Council also encourages that every effort should be taken to secure not only the financial but also the human resources needed for the successful implementation of such an ambitious plan.

The Scientific Council takes note with interest of the report “Prospects for JINR research in astrophysics and neutrino physics” presented by DLNP Deputy Director V. Bednyakov. The Scientific Council considers this to be a very important research field and believes that world-level relevant scientific achievements can be realized at JINR. It supports the proposal formulated in the report to grant priority status to the activities in this area. The Scientific Council recommends that JINR focus on the most important projects in which it could play the leading role and offer major contributions.

The Scientific Council welcomes the idea of constructing a new modern complex for neutrino studies on the site of the Kalinin Nuclear Power Plant in the Tver Region, not far from JINR. The unique features of this complex justifiably promise the production of results of the highest scientific value, in particular in addressing the problem of sterile neutrinos and reactor anomalies, which is certainly important in the context of raising the prestige of JINR and its attractiveness to young researchers from Member States.

The Scientific Council highly appreciates the report “Heavy-ion nuclear physics at JINR: prospects and collaboration” presented by FLNR Scientific Leader Yu. Oganessian. The Scientific Council thanks him for his long and dedicated work which has led JINR to become world leader in the field of the synthesis of superheavy elements.

The Scientific Council takes note of the proposals for JINR’s participation in the upgrades of the LHC and ALICE, ATLAS and CMS detectors presented in the report by Chief Scientific Secretary N. Russakovich. It supports these proposals, and looks forward to being regularly informed at future sessions about the progress of their implementation.

The Scientific Council takes note of the progress report from the Update of the European Strategy for Particle Physics presented by the member of the Scientific Council P. Jenni (CERN). A series of draft statements is proposed by the European Strategy Group, of which JINR is an invited member, for approval by the CERN Council in May 2013. They state that “Europe’s top priority should be the exploitation of the full potential of the LHC, including the high-luminosity upgrade of the machine and detectors with a view to collecting ten times more data than the initial design, by around 2030”. The Scientific Council encourages the JINR Directorate to address the Committee of Plenipotentiaries for its approval of official steps towards observer status of JINR at CERN.

The Scientific Council notes the information on matters related to the publication of the JINR journals “Particle and Nuclei” and “Particle and Nuclei, Letters” presented by the scientific secretaries of these journals, A. Isaev and A. Dorokhov. The first speaker introduced the new membership of the editorial board of “Particle and Nuclei”. The second speaker suggested some measures that would improve the organization of the activity of the journal “Particle and Nuclei, Letters”, in particular the appointment of a new membership of the editorial board and the acceleration of issues of the electronic version of the journal. The Scientific Council looks forward to further successful work of these scientific journals.

III. Recommendations in connection with the PACs

The Scientific Council concurs with the recommendations made by the PACs at their January 2013 meetings as reported at this session by Professors I. Tserruya, W. Greiner, and P. Alekseev.

Particle Physics Issues

The Scientific Council appreciates the progress in realization of the Nuclotron-NICA project, in agreement with the general schedule. It recognizes the progress toward starting the tests of new particle sources, booster construction and progress in the intense R&D programme for the heavy-ion linac. It also supports the beginning of NICA building construction in 2013, which is vital to sustaining the project plan.

The Scientific Council takes note of the stable operation of the Nuclotron in Run 46 (November–December 2012) and supports the PAC's recommendations for further improvements of the beam spill quality. The Scientific Council appreciates the reports about the new experimental results obtained with the Nuclotron beams.

The Scientific Council is pleased to note that fourteen new contributions have been added to the NICA White Paper. It strongly supports the PAC's recommendation on the in-depth analysis of many contributions in the White Paper to identify realistic measurements needed for validation of models and theories, in coordination with the MPD and BM@N experiments.

The Scientific Council notes with satisfaction the continuation of a fruitful dialog between the MPD team and Detector Advisory Committee (MPD-DAC). It congratulates the MPD team for the significant progress made in prototyping and optimizing the detector elements, and welcomes the beginning of the TDR. The Scientific Council thanks the members of the MPD-DAC for the detailed evaluation of the project and recommends the continuation of regular reviews.

The Scientific Council is pleased to note the considerable progress achieved by the BM@N project in developing the experimental facility and approves its continuation until the end of 2016.

The Scientific Council welcomes the PAC's recommendations on the continuation of the current first-priority projects and activities in particle physics within the suggested time scales, as outlined in the PAC report.

The Scientific Council supports the PAC's recommendations on the approval of JINR participation in the upgrade programme of the ATLAS and CMS experiments under the general guidance of the JINR Directorate and in accordance with the identification of and

focusing on high-priority detector upgrade items.

Nuclear Physics Issues

The Scientific Council is pleased to note the successful completion of the experiments on the synthesis of Element 117 at FLNR, which, in addition to the international recognition of the discoveries of elements 114 and 116, was an outstanding achievement in 2012.

The Scientific Council notes the information concerning the current status of the development of the IREN facility, and appreciates the progress in the preparation of the research programme including the experimental techniques and instruments. The first results produced with the IREN Phase 1 facility are encouraging, and the activity for the development of the IREN source for reaching the design parameters should continue. The Scientific Council looks forward to the assembly of the second accelerator station of IREN and to the improvement of the target within the shortest possible time.

The Scientific Council appreciates the progress of work on the DANSS detector being developed in collaboration with ITEP (Moscow) and the results of experiments with the pilot module DANSSino which allowed a number of on-line tests to be performed, the efficiency of the shielding to be checked and real background conditions to be measured.

Condensed Matter Physics Issues

The Scientific Council highly appreciates the successful start of the User Programme at the IBR-2 spectrometer complex. It concurs with the PAC that the extension and implementation of the User Programme should remain one of the major activities at FLNP in 2013. The Scientific Council also supports the further development of the modernized reactor in terms of construction of new cold neutron moderators.

The Scientific Council appreciates continuation of work for the upgrade of FLNP instruments. In particular, it welcomes the efforts taken on construction of the new multifunctional reflectometer GRAINS and commissioning of the upgraded EPSILON-MDS and SKAT diffractometers.

Regarding research in the field of astrobiology as a promising and dynamically developing scientific direction, the Scientific Council supports the PAC's recommendation for the opening of the new theme "Research on Cosmic Matter on the Earth and in Nearby Space; Research on the Biological and Geochemical Specifics of the Early Earth" for the period 2013–2015.

Common Issues

The Scientific Council highly appreciates the work conducted by the JINR University Centre, which carries out the overall coordination of the educational programme at JINR. It supports the recommendations made at the PAC meetings concerning the continuation of

this activity under the new theme “Organization, Support and Development of the JINR Educational Programme” for the next five-year period.

Reports by young scientists

The Scientific Council notes with interest the following reports by young scientists, which were selected by the PACs for presentation at this session: “The kinetics of cluster growth in polar solutions of fullerenes: study of the C₆₀/NMP solution”, “DANSSino: pilot version of the DANSS neutrino detector”, “Precise $\sin^2(2\theta_{13})$ measurements in the Daya Bay reactor neutrino experiment”, and thanks the speakers: N. Jargalan, I. Zhitnikov, and M. Gonchar. It regards this as a very important series of reports delivered at recent sessions and strongly encourages their continuation.

IV. Memberships of the PACs

As proposed by the JINR Directorate, the Scientific Council appoints Professor A. Korshennikov (Kurchatov Institute, Moscow, Russia) as a new member of the PAC for Nuclear Physics for a term of three years.

V. Awards and prizes

The Scientific Council congratulates Professor A. Sigov on the award of the title “Honorary Doctor of JINR”.

The Scientific Council approves the Jury’s recommendations on the JINR prizes for 2012 (Appendix 1) in the annual scientific research competition in the fields of theoretical physics, experimental physics, physics instruments and methods, and applied physics.

The Scientific Council congratulates Professor E. Fiorini (University of Milan – Bicocca, Italy) on the award of the 2012 B. Pontecorvo Prize for his outstanding contributions to the experimental search of neutrinoless double-beta decay, in particular to the pioneering development of the semiconductor and cryogenic techniques applied for registration of this process. The Scientific Council thanks Professor E. Fiorini for his inspired presentation.

VI. Elections and announcement of vacancies in the directorates of JINR laboratories

The Scientific Council elected by ballot V. Shvetsov as Director of the Frank Laboratory of Neutron Physics (FLNP) and V. Korenkov as Director of the Laboratory of Information Technologies (LIT), each for a term of five years. It also elected M. Veselsky as Deputy Director of the Flerov Laboratory of Nuclear Reactions (FLNR), until the completion

of the term of office of the FLNR Director.

The Scientific Council thanks A. Belushkin and V. Ivanov for their successful tenure as Directors of FLNP and LIT, respectively.

The Scientific Council announces the vacancies of the positions of Deputy Directors of FLNP and LIT, and of a Deputy Director of VBLHEP. The election for these positions will take place at the 114th session of the Scientific Council.

VII. Rules of procedure

The Scientific Council supports the amendments presented by the Secretary of the Scientific Council, N. Russakovich, concerning the endorsed appointment by ballot of Deputy Directors of JINR Laboratories, which have been formulated in response to the suggestions made by members of the Scientific Council at the previous session. The Scientific Council adopts the updated text of the Rules of Procedure of the JINR Scientific Council (Appendix 2) with account of the remarks given at this session and recommends their approval by the Committee of Plenipotentiaries.

VIII. Appreciation

Closing the session, JINR Director V. Matveev expressed sincere appreciation to the members of the Scientific Council on the occasion of the completion of their five-year term of service.

IX. Next session of the Scientific Council

The 114th session of the Scientific Council will be held on 19–20 September 2013.

V. Matveev
Chairman of the Scientific Council

Gh. Stratan
Co-chairman of the Scientific Council

N. Russakovich
Secretary of the Scientific Council