

**I. General considerations**

The Scientific Council takes note of the comprehensive report presented by JINR Director V. Matveev and covering such issues as the preliminary results of implementation of the current Seven-Year Plan for the Development of JINR (2010–2016), the start of planning for the next seven-year period, the latest events in JINR's international cooperation, and the forthcoming celebration of the 60th anniversary of this Institute.

The Scientific Council wishes to recognize that the main objectives of the current seven-year plan have been achieved by JINR. These include the timely commissioning of the modernized IBR-2 reactor, the fabrication of the main systems for the DC-280 cyclotron, the progress in upgrading the Nuclotron-NICA accelerator complex, the start-up of the Tier-1 centre at JINR, the commissioning of the Dubna cluster of the Baikal-GVD facility and the first data already collected from it. The Scientific Council congratulates the JINR staff on these important results.

The Scientific Council considers the recent signing of the contract on the NICA complex civil construction to be a very significant step towards timely realization of the NICA facility and congratulates the JINR Directorate for this important event.

The Scientific Council takes note of the situation with the construction of the SHE Factory building and urges the Directorate to take all possible measures for reducing the accumulated delay (of 12 months) in starting experiments at this important facility.

The Scientific Council reiterates its recognition of the ongoing efforts aimed at the integration of JINR's research programme and facilities into the European and worldwide landscape, which allows the international cooperation in science to be intensified and enriched.

The Scientific Council notes the start of preparation of the next Seven-Year Plan for the Development of JINR for the years 2017–2023 in view of the progress of the current seven-year plan by the end of 2016.

**II. Recommendations for the First Draft of the JINR Seven-Year Development Plan (2017–2023)**

The Scientific Council takes note of the proposals for the First Draft of the JINR Seven-Year Development Plan (2017–2023) presented by Vice-Directors R. Lednický (Particle physics and high-energy physics, Information technology), M. Itkis (Low- and intermediate-energy nuclear physics, Nuclear physics with neutrons, Condensed matter

physics), G. Trubnikov (Development of the JINR scientific infrastructure).

The main principles for elaborating this plan should be the continuity of the ongoing research programme with the new opportunities afforded by the novel technical developments, strengthening of the personnel in quality and number, and optimizing the management and the corresponding regulations.

In view of these principles, the tasks to be addressed in the new seven-year plan should be as follows:

- focusing on the effective use of new and upgraded basic facilities built under the current seven-year plan (modernized IBR-2, SHE Factory);
- constructing the first stage of the NICA complex (2019);
- promoting international cooperation around JINR's major facilities and further integrating these facilities into the European and worldwide research infrastructures;
- adapting the human resources to the requirements of the new basic facilities;
- attracting new countries to the JINR community;
- adjusting the general infrastructure and modus operandi of JINR in accord with the experience of international research centres of excellence.

The Scientific Council recommends that the Directorate continue its work towards completing the seven-year plan and looks forward to its further consideration at the next session.

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

The Scientific Council takes note of the recommendations made by the PACs at their June 2015 meetings as reported at this session by Professors I. Tserruya (PAC for Particle Physics), F. Piquemal (PAC for Nuclear Physics), and P. Alekseev (PAC for Condensed Matter Physics). The Scientific Council suggests that the JINR Directorate should take these recommendations into account in preparing the JINR Topical Plan of Research and International Cooperation for 2016.

#### **Particle Physics Issues**

The Scientific Council is pleased to note the progress in upgrading the Nuclotron-NICA accelerator complex: development of the production line for manufacturing the superconducting magnets, diagnostic systems, ion source, commissioning of the new linear accelerators, and other NICA elements and systems.

The Scientific Council appreciates the successful collaboration work of the MPD Detector Advisory Committee and the MPD team, and the progress in implementing the MPD project — preparation of the TDR for the main detector subsystems, preparation of

the structural elements of the facility, and development of the technological sites for detector series manufacturing which should proceed in accordance with a complete integration plan of the full MPD detector. The Scientific Council supports the PAC's recommendation to assign more manpower into this flagship project of JINR.

The Scientific Council notes the considerable progress achieved by the BM@N team, including simulation results and results of the first technical run, and supports the PAC's recommendations on further developments of the project and cooperation with the FAIR CBM team and negotiations with other external groups for possible collaborations.

The Scientific Council supports the PAC's decision on the approval of ongoing projects and new projects in particle physics only until the end of the current seven-year plan, with the exception of large projects where it is clear that the Institute commitments go beyond that date. Given the ongoing discussions on the development of the next JINR 7-Year Development Plan, this recommendation will allow maximum flexibility to laboratory and institute management in determining their priorities.

#### Nuclear Physics Issues

The Scientific Council takes note of the PAC recommendations concerning the concluding theme "Physics of Light Mesons" proposed for extension. The research programme of the theme related to investigation of production, decay and interaction of light mesons and muons is aimed at determining the symmetries and the interaction dynamics. The theme includes five projects (COMET, GDH&SPASCHARM, MEG-PEN, SPRING, TRITON) and two experiments (MUON, PAINUC) performed at various accelerators in the world. During the reported period of 2013–2015, numerous new results were obtained, published and reported at international conferences.

The Scientific Council appreciates the high-quality of the investigations performed under the theme "Physics of Light Mesons" and supports its continuation in 2016. The theme and its projects will be re-examined within the framework of the new seven-year plan.

#### Condensed Matter Physics Issues

The Scientific Council highly appreciates the efforts being undertaken by the FLNP Directorate to develop the IBR-2 instruments. It notes, in particular, the implementation of the Real Time Diffractometer, a new instrument designed to study irreversible processes in solids *in situ* and in real time, which is already operational within the User Programme. Given the successful completion of the construction of this instrument, the Scientific Council concurs with the PAC recommendation on the closure of the project "Diffractometer for studies of transient processes in real time at the IBR-2 reactor".

The Scientific Council endorses the PAC recommendations on extension of the theme “Medical and Biological Research with JINR Hadron Beams” for 2016. It notes the high scientific and social importance of the results achieved for the last three years in the field of clinical research on proton radiotherapy applications in the treatment of different diseases as well as in the fields of radiobiology and radiation genetics.

The Scientific Council appreciates the first scientific results achieved at LRB in the field of astrobiology. Using JINR accelerators and in collaboration with specialists of Italian universities, new data were obtained on modeling the synthesis of prebiotic compounds in space. Recognizing the successful start of this activity, the Scientific Council supports the PAC recommendation on extension of the theme “Research on Cosmic Matter on the Earth and in Nearby Space; Research on the Biological and Geochemical Specifics of the Early Earth” for 2016.

#### Common Issues

At their recent meetings, the PACs devoted much attention to considering the first proposals received from the Laboratories for the new seven-year development plan (2017–2023) in the respective areas of activity. The Scientific Council takes note of the recommendations taken. Discussions of the first draft of this plan are envisaged for the next meetings, with emphasis on the time scales for the various research programmes. The Scientific Council highly appreciates the willingness of the PACs to contribute to the preparation of this important document.

#### Reports by young scientists

The Scientific Council appreciates the following reports by young scientists which were selected by the PACs for presentation at this session: “Methods of increasing the efficiency of registration of the rare decay  $K_L^0 \rightarrow \pi^0 \nu \bar{\nu}$  in the E391 experiment”, “Production of straw tubes for the COMET experiment”, “Study of crystal and magnetic structures of nanostructured lanthanum-strontium manganites in a wide pressure and temperature range”, and thanks the speakers: Yu. Stepanenko (DLNP), N. Tsverava (DLNP), and N. Belozerova (FLNP). The Scientific Council welcomes similar reports in the future.

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

As proposed by the JINR Directorate, the Scientific Council appoints E. Boos (SINP, Moscow, Russia) and P. Závada (IP, Prague, Czech Republic) as new members of the PAC for Particle Physics for a term of three years. The Scientific Council thanks the outgoing member V. Savrin for his successful work as a member of this PAC.

As proposed by the JINR Directorate, the Scientific Council appoints D. Sangaa (IPT,

Ulaanbaatar, Mongolia) as a new member of the PAC for Condensed Matter Physics for a term of three years. The Scientific Council thanks the outgoing member L. Dubrovinsky for his successful work as a member of this PAC.

#### **V. Scientific reports**

The Scientific Council highly appreciates the reports “Project SKA” and “Report on the SQM 2015 Conference and on the South Africa–NICA Roundtable workshop”, and thanks Professors R. Adam and J. Cleymans for their informative presentations.

#### **VI. Awards and prizes**

The Scientific Council endorses the proposal of the JINR Directorate to award the title “Honorary Doctor of JINR” to Professors V. Fortov (Russia), P. Fré (Italy), R.-D. Heuer (Germany), J. Khubua (Georgia), Yu. Oganessian (Russia), H. Stöcker (Germany), I. Tighineanu (Moldova), and N. V. Zamfir (Romania), in recognition of their outstanding contributions to the advancement of science and the education of young scientists.

The Scientific Council congratulates the laureates of the JINR prizes for 2014 — winners of the annual scientific research competition in the fields of theoretical physics, experimental physics, physics instruments and methods, and applied physics.

#### **VII. Appointment of a VBLHEP Deputy Director**

The Scientific Council endorsed the appointment of R. Tsenov as Deputy Director of the Veksler and Baldin Laboratory of High Energy Physics (VBLHEP), until the completion of the term of office of the VBLHEP Director.

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

The 119th session of the Scientific Council will be held on 18–19 February 2016.

M. Matveev

Chairman of the Scientific Council

M. Waligórski

Co-chairman of the Scientific Council

N. Russakovich

Secretary of the Scientific Council