I. In memory of Vladimir Kadyshevsky

The Scientific Council deeply regrets the sad loss of Professor Vladimir Kadyshevsky, an outstanding theoretical physicist and the Scientific Leader of JINR. As Director of JINR during 1992–2005 he made a great contribution to the successful operation and development of the Joint Institute for Nuclear Research based on broad international cooperation. Vladimir Kadyshevsky was a true advocate of fundamental science, strongly believing in the role of science in bringing nations together. It was thanks to his efforts that this Scientific Council of JINR became truly international, composed not only of representatives of the JINR Member States but also of scientists from leading research centres of other countries collaborating with JINR. His extraordinary dedication to science, amiable and kind attitude to people will be sorely missed.

II. General considerations

The Scientific Council appreciates the progress in implementing the recommendations of the 115th session of the Scientific Council and the decisions of the session of the Committee of Plenipotentiaries of the Governments of the JINR Member States (March 2014) as resented in the report by JINR Director V. Matveev.

The Scientific Council is pleased to note the good progress in implementing the Seven-Year Plan for the Development of JINR (2010–2016). At the same time it appeals to the JINR Directorate to pay continuous attention to the working schedule of the SHE factory, where the accumulated delay is already about a year as compared to the original planning. Even more attention should be paid to the NICA complex, which is now ready for starting the civil engineering and ordering valuable equipment for the MPD experiment. The issue of consolidation of financial and human resources is of primary importance here. Ways of attracting resources additional to the JINR budget including long-term loans should be carefully investigated.

The Scientific Council supports the efforts of the JINR Directorate to develop a strong scientific network with Chinese, Indian and Latin American authorities and research centres and welcomes their intention to join the JINR scientific programme and to contribute to the JINR infrastructure.

The Scientific Council was pleased to get the news from the CERN Council about approval of mutual observership of JINR at CERN and of CERN at JINR, which will

further promote and intensify the cooperation between CERN and JINR.

III. Recommendations on reported activities

The Scientific Council takes note of the report “Progress of research in the field of neutrino physics and astrophysics” presented by DLNP Director V. Bednyakov. The Scientific Council appreciates the events which were recently organized by the JINR and DLNP Directorates: the joint session of the PACs for Particle Physics and Nuclear Physics for the assessment of the JINR Neutrino Physics Programme and the meeting of the Scientific Advisory Committee for the Baikal Experiment with its important recommendations and new international participants of the experiment. These meetings were conducted in order to implement the recommendations of the 115th session of the Scientific Council concerning international expertise and consolidation of the JINR Neutrino Programme and the determination of prospects for JINR’s new basic facility — the GVD neutrino telescope in Lake Baikal.

The Scientific Council is pleased to note the readiness of the joint JINR–INR RAS team of the Baikal experiment to complete deployment of the first cluster of GVD (“Dubna cluster”) in 2015 and to put it into operation.

The Scientific Council welcomes DLNP’s recent achievements with the DANSS experiment at the Kalinin Nuclear Power Plant and expects the first interesting results in 2015.

The Scientific Council recommends that the JINR Directorate support the future implementation of the JINR Neutrino Programme with the resource requirements estimated by DLNP for the next 3–5 years.

The Scientific Council takes note of the report “Progress of construction of a Factory of Superheavy Elements (SHE)” presented by FLNR Director S. Dmitriev. The Scientific Council commends the efforts being undertaken by JINR to build the SHE factory, noting, in particular, that completion of work related to construction of elements of the DC-280 cyclotron is currently coming to the forefront and that construction of the experimental hall of the SHE factory has recently been accelerated. The Scientific Council recommends that the JINR and FLNR Directorates continue to work towards the elimination of the construction delay in order to meet the schedule adopted under the Seven-Year Plan for the Development of JINR.

The Scientific Council takes note of the report “User policy of the Laboratory of Information Technologies” presented by LIT Director V. Korenkov. The Scientific

Council supports the efforts of LIT aimed at creating a first-class IT facility to meet the present and future challenges of JINR.

The Scientific Council takes note of the report “Status of the BM@N project” presented by VBLHEP Leading Researcher M. Kapishin, and supports the plan for implementing the project. The Scientific Council welcomes the establishment of a management team for the project and of a Detector Advisory Committee (DAC) whose first working meeting with the BM@N team took place at JINR on 24 June 2014. The Scientific Council requests a report from this DAC at the next session.

IV. Recommendations in connection with the PACs

The Scientific Council concurs with the recommendations made by the PACs at their June 2014 meetings as reported at this session by I. Tserruya, Chairperson of the PAC for Particle Physics (through teleconference), W. Greiner, Chairperson of the PAC for Nuclear Physics, and by O. Belov, Scientific Secretary of the PAC for Condensed Matter Physics.

Particle Physics Issues

The Scientific Council recognizes the progress achieved by the VBLHEP towards implementation of the Nuclotron-NICA project, in particular: the beginning of production of superconducting magnets for the NICA and FAIR projects, the progress with the KRION-6T heavy-ion source and the source of polarized particles, the preparations for the assembly of the new heavy-ion Linac expected to be fully delivered by June 2015, and the ongoing efforts towards finalizing the construction documents for the NICA collider building in order to sign the contract with the general contractor.

The Scientific Council appreciates the successful completion of the R&D for the preparation of the technical projects for the MPD main subsystems. It also notes the progress towards preparation of the BM@N project.

The Scientific Council welcomes the presentation of the Letter of Intent “Spin physics experiments at NICA-SPD with polarized proton and deuteron beams” and the first steps toward the formation of an international collaboration around the SPD experiment. This experiment is regarded as an essential part of the NICA research programme, and the NICA-SPD team is encouraged to prepare a full proposal.

The Scientific Council supports the PAC’s recommendations on the continuation of ongoing projects and new activities as outlined in the PAC report.

The Scientific Council highly appreciates the success of the CERN–JINR Teacher Programme Collaboration and supports the proposal to extend this educational programme.

Nuclear Physics Issues

The Scientific Council highly appreciates the results of investigations conducted by the FLNR staff under the theme “Synthesis and properties of nuclei at stability limits”, which concern, in particular, the synthesis of Element 117 and experimental work confirming the discoveries of elements 113 and 115; investigation of chemical properties of Element 113; study of fission and quasi-fission mechanisms, as well as production of neutron-rich nuclei in multi-nucleon transfer reactions; research of the structure of light nuclei ^{10}He, ^{6}Be beyond the limits of nuclear stability; theoretical studies of nuclear structure and nuclear reaction mechanisms. The Scientific Council supports the PAC’s recommendation on the extension of this theme for two more years (2015–2016), with first priority, in order to harmonize it with the JINR Seven-Year Development Plan.

Common Issues

The Scientific Council endorses the results of the joint session of the PAC for Particle Physics and the PAC for Nuclear Physics for the assessment of the JINR Neutrino Physics Programme, which was held on 26 June 2014. The Scientific Council supports the PACs’ recommendations to the DLNP Directorate to accelerate its efforts towards concentration of resources in selected directions and to prioritize all the neutrino projects in which JINR is involved according to the following criteria: (i) scientific merit and discovery potential, (ii) resources involved (manpower and finances), (iii) visibility of JINR participation, (iv) competitiveness and timeliness with other international projects.

As far as the Baikal experiment is concerned, the Scientific Council supports the continuation of the project evaluation regarding science, feasibility, cost, construction issues, milestones as well as synergies and competition with existing and planned international projects.

Condensed Matter Physics Issues

The Scientific Council appreciates the efforts being undertaken by the FLNP staff to further develop the IBR-2 facility and to upgrade the spectrometers. In particular, it notes the results of beam characteristic measurements following the modernization of the IBR-2 reactor, the advancing of new techniques for the pulsed neutron sources, and

a wide range of new research topics useful for developing the experimental capabilities of the spectrometer complex.

The Scientific Council supports the activities planned within the new themes “Development of Experimental Facilities for Condensed Matter Investigations with Beams of the IBR-2”, “Investigations of Condensed Matter by Modern Neutron Scattering Methods” and within the new projects “Development of PTH sample environment system for the DN-12 diffractometer at the IBR-2 facility”, “Isotope-identifying neutron reflectometry at the IBR-2 facility” proposed for implementation in 2015–2017.

The Scientific Council supports the PAC’s recommendations on the extension of the themes “Research on the Biological Effect of Heavy Charged Particles with Different Energies” and “Multimodal Platform for Raman and Nonlinear Optical Microscopy and Microspectroscopy for Condensed Matter Studies” for 2015–2017 and the opening of the corresponding projects. The Scientific Council welcomes continuation of studies within the theme “Radiation Effects and Physical Basis of Nanotechnology, Radioanalytical and Radioisotope Investigations at the FLNR Accelerators” for 2015–2016 and the opening of the new theme and project “Novel Semiconductor Detectors for Fundamental and Applied Research” for 2015–2017.

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 NA48/2 experiment at CERN”, “Production of doubly magic nucleus ^{100}Sn in fusion reactions via particle and cluster emission channels”, and “Meteorites as catalysts of the prebiotic synthesis of biomolecules from formamide under radiation exposure”. The Scientific Council thanks the speakers: A. Korotkova, Sh. Kalandarov, and M. Kapralov, respectively, for their excellent presentations. The Scientific Council welcomes similar reports in the future.

V. Memberships of the PACs

As proposed by the JINR Directorate, the Scientific Council appoints M. Dubničkova (Comenius University, Bratislava, Slovakia) and T. Perring (RAL, Didcot, United Kingdom) as new members of the PAC for Condensed Matter Physics for a term of three years.

The Scientific Council thanks the outgoing member V. Lisý (University of Košice, Slovakia) for his successful work as member of this PAC.

VI. Awards

The Scientific Council congratulates Professors S. Enkhbat and R. Maier on the award of the title “Honorary Doctor of JINR”.

The Scientific Council endorses the proposal of the JINR Directorate to award the title “Honorary Doctor of JINR” to Professors B. Sharkov (Russia), Gh. Stratan (Romania), and Tran Thanh Van (Vietnam/France), in recognition of their outstanding contributions to the advancement of science and the education of young scientists.

The award of the V. Dzhelepov Prize took place at the session. The Jury has conferred it upon JINR scientists V. Bystritsky, V. Kadyshevsky and M. Sapozhnikov for their series of papers “Application of Nuclear Physics Methods for the Identification of Complex Chemical Substances”.

The Scientific Council congratulates the laureates of the JINR prizes for 2013 — winners of the annual scientific research competition in the fields of theoretical physics, experimental physics, physics instruments and methods, and applied physics.

The Scientific Council congratulates JINR on being awarded a commemorative medal for its long-term cooperation with the Comenius University in Bratislava, on the occasion of the 95th anniversary of this University. The medal was received from the Plenipotentiary of Slovakia to JINR, S. Dubnička.

The Scientific Council congratulates Professor I. Golutvin on being awarded the P. Cherenkov Prize of the Russian Academy of Sciences for his outstanding contribution to the success of the CMS experiment at CERN as leader of the RDMS CMS collaboration.

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

The Scientific Council elected V. Kekelidze as Director of the Veksler and Baldin Laboratory of High Energy Physics (VBLHEP) and E. Krasavin as Director of the Laboratory of Radiation Biology (LRB), each for a term of five years.

The Scientific Council announces the vacancies of the positions of Deputy Directors of VBLHEP and LRB. The endorsement of the appointment for these positions will take place at the 117th session of the Scientific Council.

VIII. Next session of the Scientific Council

The 117th session of the Scientific Council will be held on 19–20 February 2015.

V. Matveev
Chairman of the Scientific Council

M. Waligórski
Co-chairman of the Scientific Council

N. Russakovich
Secretary of the Scientific Council