ACTIVITIES OF JINR GOVERNING AND ADVISORY BODIES

SESSION OF THE JINR COMMITTEE OF PLENIPOTENTIARIES

A regular session of the Committee of Plenipotentiaries of the Governments of the JINR Member States was held in Dubna on 24–25 March. It was chaired by the representative of the Government of the Russian Federation S. Mazurenko.

The Committee of Plenipotentiaries (CP) took note of the report presented by JINR Director A. Sissakian «Implementation of the Recommendations of the JINR Scientific Council and of the Decisions of the JINR Committee of Plenipotentiaries Concerning JINR's Activity in 2005; Plans of the Institute for 2006».

The CP approved the activity of the Institute Directorate on the implementation of the JINR Plan of Research and International Cooperation in 2005, on the realization of collaborative research programmes with the Member States, and on the involvement of new scientific partners in JINR. The CP welcomed the Republic of South Africa among the group of countries which had concluded long-term cooperation agreements with JINR at governmental levels.

The CP acknowledged the achievements of the Institute's staff in the implementation of the scientific programme, in particular:

— the observation of the parametric X-ray radiation of relativistic nuclei in crystals for the first time in experiments at the Nuclotron;
— the key contribution made by JINR scientists to achieving a new, high-precision result of the measurement of the top-quark mass in the joint CDF experiment at FNAL;
— new results in the measurements of asymmetry parameters in decays of charged kaons in the NA48/2 experiment at CERN;
— the registration of two new events of the decay of element 118 and continuation of the studies on the chemistry of the synthesized superheavy elements;
— important results obtained in the analysis of data for small-angle neutron scattering and high-resolution X-ray diffraction on lipid membranes;
— new original results of theoretical studies of Drell–Yan processes;
— the commissioning of a high-speed 2.5 Gbps communication channel between Dubna and Moscow;
— the signing of new protocols on cooperation between the JINR University Centre and educational institutions of Kazakhstan, Sweden, and China.

The CP noted the successful operation of the JINR basic facilities in 2005, as well as the progress in their development and upgrade.

The CP approved the Directorate's activity on the development of the long-term scientific programme of JINR (the road map) and on the preparation, in its context, of the JINR Topical Plan of Research for the year 2007.

The CP supported the initiative of the Institute Directorate and the recommendations of the Scientific Council's 99th session concerning the participation in the International Linear Collider (ILC) project, including further feasibility studies for the construction of the ILC in the area of Dubna with the direct participation of JINR, aimed at promoting the Institute's future capabilities in the field of fundamental research on high-energy physics.

The CP approved the Directorate's activity for creating an «innovation belt» around JINR in the special economic zone in Dubna.

The Committee also supported the Directorate's efforts to optimize the structure of the JINR management.

The CP approved the Directorate's proposal, put forward on the occasion of JINR's 50th anniversary, to name several alleys on the two sites of the JINR laboratories in honour of the outstanding scientists who have made a decisive impact on the formation of the

Institute's scientific activity: N. Amaglobeli (Georgia), A. Petrosyants (USSR, Russia), Wang Ganchang (People's Republic of China) and J. Teillac (France), as well as an alley in honour of the European Organization for Nuclear Research (CERN).

The CP considered and discussed the nominations proposed by Director A. Sissakian. Based on the results of voting, the CP appointed M. Itkis and R. Lednický as Vice-Directors, N. Russakovich as Chief Scientific Secretary, and G. Shirkov as Chief Engineer, until the completion of the term of office of the new Director of JINR, A. Sissakian (i.e., 1 January 2011).

Based on the report «JINR's Financial Activity in 2005 and Plans for 2006–2007» presented by JINR Assistant Director for Financial and Economic Issues V. Katrasev, the CP noted the information on the execution of the JINR budget in 2005: in expenditure — US$38 662.1 thousand and in income — US$36 881.8 thousand.

The CP approved the JINR budget for 2006 with the total expenditure amounting to US$37.706 million, as well as the sums of the Member States' contributions for 2006.

The CP agreed with the transition to the second stage of implementation of the «Programme of Debt Restructuring and Reforming the System of Calculation and Payment of the Member States' Contributions for 2004–2010» and with an increase of the JINR budget beginning in 2007. The estimate of the JINR budget for 2007 in income and expenditure was set by the CP to US$46.2 million; also fixed were the provisional sums of the Member States' contributions and the debt payments for 2007.

Based on the report presented by the Chairman of the JINR Finance Committee, A. Volodin, on the results of the Finance Committee meeting held on 16–17 February 2006, the CP approved the Protocol of this meeting and the report presented by the Directorate on the execution of the JINR budget in 2004: in expenditure — US$34 319.9 thousand, and with the summary account as of 01.01.2005 being US$246 337.0 thousand.

Based on the report by JINR Chief Scientific Secretary N. Russakovich, the CP approved the amendment in the «Rules of Procedure of the JINR Scientific Council» concerning the position of executive co-chairman of the Scientific Council, as recommended by the Scientific Council at its 99th session (19–20 January 2006).

The CP approved the Jury's decision for awarding the 2003–2005 Bogoliubov Prize to Academician V. Kadyshevsky (JINR) and to Professor J. Wess (Germany), in recognition of their outstanding contributions to theoretical physics, in particular to the development of novel algebraic and geometric approaches to the formulation of quantum field theory.

The CP thanked the Directorate and the entire staff of the Institute for their work in 2005. Due to the completion of the terms of office of V. Kadyshevsky, Ts. Vylov, and V. Zhabitsky, the CP thanked them for their long and successful work as members of the JINR Directorate.

The Committee of Plenipotentiaries cordially congratulated the international staff of the Joint Institute for Nuclear Research on the 50th anniversary of JINR and wished them new scientific accomplishments.

SESSIONS OF THE JINR SCIENTIFIC COUNCIL

The 99th session of the JINR Scientific Council, chaired by JINR Director A. Sissakian, took place in Dubna on 19–20 January.

At the session, Professor A. Sissakian reported on the implementation of the recommendations made by the Scientific Council at its 97th and 98th sessions. The draft road map of the strategic goals of the JINR scientific programme was presented by A. Sissakian, A. Olchevski, M. Itkis, and A. Belushkin. DLNP Director A. Olchevski informed the Council about JINR's plans for participation in the International Linear Collider (ILC) activity. Information on the Institute's participation in innovation activity was presented by the Assistant to the JINR Director for Innovative Development, A. Ruzaev. JINR Acting Chief Engineer G. Shirkov reported on the progress in implementing the programme «Young Staff at JINR» and on the development of the Institute's engineering and technical infrastructure in 2006–2010. A proposal for completion of the construction of the IREN facility (1st stage) was presented by FLNP Deputy Director V. Shvetsov.

The recommendations of the Programme Advisory Committees were reported by T. Hallman (PAC for Particle Physics), N. Janeva (PAC for Nuclear Physics), and W. Nawrocik (PAC for Condensed Matter Physics). JINR Acting Chief Scientific Secretary N. Russakovich presented the Directorate's proposals for the memberships of the PACs, also for an amendment in the «Rules of Procedure of the Scientific Council» concerning the position of executive co-chairman of the Scientific Council.

Vacancies of the Directors of VBLHE, FLNR, LPP, and LRB were announced. The election for these positions will take place at the Scientific Council's 101st

session. It was proposed by the JINR Directorate to postpone the election of the Directors of BLTP and FLNP till the 101st session as well. The Scientific Council was informed about the recommendations of the jury on the JINR prizes for 2005. The Directorate presented its proposals on the awarding of the title «Honorary Doctor of JINR» to a group of outstanding scientists. The awarding of the 2005 Pontecorvo Prize took place at the session; one of the laureates, S. Mikheyev, a leading researcher of the Institute for Nuclear Research (Moscow), made a presentation on the subject of his research.

The Director of the Burdenko Scientific Research Institute of Neurosurgery (Moscow), A. Konovalov, reported on the cooperation between the Russian Academy of Sciences and JINR in the fields of radiation biology and radiation medicine.

The following scientific reports were presented at the session: «The Quantum Number Colour, Coloured Quarks and QCD» by A. Tavkhelidze, «Search for a Mixed Phase of Strongly Interacting Matter at the Nuclotron» by A. Sorin, «Precise Predictions of Low-Energy QCD and Their Check by the DIRAC Experiment» by L. Nemenov, and «Peculiarities of the Production and Decay of Superheavy Elements» by M. Itkis.

The Scientific Council took note of the comprehensive report presented by JINR Director A. Sissakian on the implementation of the recommendations made at the 97th and 98th sessions of the Scientific Council and was 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 were being implemented.

The Scientific Council welcomed the appointment of V. Kadyshevsky as Scientific Leader of JINR and his continuation in the membership of the Scientific Council.

The Scientific Council noted that, in accordance with the Institute Charter, JINR Director A. Sissakian has nominated M. Itkis and R. Lednický as Vice-Directors of JINR, N. Russakovich as Chief Scientific Secretary of JINR, and G. Shirkov as Chief Engineer of JINR.

The Scientific Council took note of the information concerning the organization of the JINR Laboratory of Radiation Biology and of the appointment of E. Krasavin as Director-Organizer of this Laboratory and the appointment of D. Fursaev as new Director of the JINR University Centre (UC). The Scientific Council thanked S. Ivanova for her successful work during 15 years as Director of the UC and highly appreciated her invaluable contributions to the implementation of the Institute's educational programme.

In response to the Scientific Council's previous recommendation, Professors A. Sissakian, A. Olchevski, M. Itkis, and A. Belushkin presented updated road maps with emphasis made on the strategic goals of the Institute's research programme for the coming 10 years. The Scientific Council endorsed these documents, elaborated by the Institute's Directorate and discussed by the internal scientific councils of JINR and its Laboratories as well as at the November 2005 meetings of the PACs, and considered them as a solid basis for further development. The Scientific Council agreed with the Directorate's proposal to update the road map in 2008–2009 for its further consideration.

The Scientific Council invited the JINR Directorate and experts to develop proposals concerning the development of the Institute's future scientific basis, including possible megaprojects such as the International Linear Collider (ILC), which obviously are of great importance for the long-term future of JINR. The Scientific Council took note of JINR's plans for participation in the ILC activity, presented by A. Olchevski. The Scientific Council supported the intention of JINR to participate actively in the ILC project and the possible interest of JINR to host the ILC, which was reported by Professor A. Sissakian at the meeting of the ILC Global Design Effort Group held in Frascati (Italy) in December 2005.

The Scientific Council took note of the information on JINR's participation in innovation activity, presented by the Assistant to the JINR Director for Innovative Development, A. Ruzaev, which implies efforts to facilitate public-private partnership in developing the triangle «research–innovations–education» in Dubna, creation of a Centre for Science and Technology Commercialization within the EuropeAid/115381/C/SV/RU project, and participation in the project of first venture funds in Russia.

The Scientific Council welcomed an agreement, signed on 18 January 2006, between the Government of the Russian Federation, the Government of the Moscow Region and the Administration of Dubna on the establishment of a technological-and-innovative free economic zone in Dubna, regarding this decision as a great new opportunity for advancing JINR's innovation activity.

The Scientific Council took note of the report «Progress of Implementation of the Programme *Young Staff at JINR*» and of the information concerning the development of the JINR engineering and technical infrastructure in 2006–2010, presented by JINR Acting Chief Engineer G. Shirkov as supplements to the Institute's 7-year Scientific Programme. The Scientific Council emphasized again the importance of these issues for the future of JINR.

The Scientific Council was pleased to hear the information, presented by FLNP Deputy Director V. Shvetsov, about the successful start-up of dismantling the IBR-30 reactor and the recent progress in the creation and adjustment of LINAC components for the IREN project.

The Scientific Council was informed about the decision of the JINR and FLNP Directorates to reduce the

GOVERNING AND ADVISORY BODIES OF THE JOINT INSTITUTE FOR NUCLEAR RESEARCH

COMMITTEE OF PLENIPOTENTIARIES OF THE JINR MEMBER STATES

Republic of Armenia	H. A. Vartapetian	Republic of Moldova	J. Tiginianu
Republic of Azerbaijan	M. Kerimov	Mongolia	Ts. Ganzog
Republic of Belarus	V. I. Nedilko	Republic of Poland	A. Hrynkiewicz
Republic of Bulgaria	S. Tsochev	Romania	N. Zamfir
Republic of Cuba	D. Codorniu	Russian Federation	A. A. Fursenko
Czech Republic	R. Mach	Slovak Republic	S. Dubnička
Georgia	A. N. Tavkhelidze	Ukraine	V. S. Stognij
Republic of Kazakhstan	K. K. Kadyrzhanov	Republic of Uzbekistan	B. S. Yuldashev
D. P. Republic of Korea	Li Je Sen	Socialist Republic of Vietnam	Nguyen Van Hieu

Finance Committee

One delegate
from each Member State

SCIENTIFIC COUNCIL

Chairman: A. N. Sissakian

Scientific Secretary: N. A. Russakovich

I. Antoniou	Greece	G. Khuukhenkhuu	Mongolia	B. Peyaud	France
A. Antonov	Republic of Bulgaria	M. V. Kovalchuk	Russian Federation	G. Piragino	Italy
Ts. Baatar	Mongolia	F. Lehar	France	S. K. Rakhmanov	Republic of Belarus
A. Budzanowski	Republic of Poland	A. A. Logunov	Russian Federation	J. Ružička	Slovak Republic
M. Budzynski	Republic of Poland	M. Mateev	Republic of Bulgaria	V. Sahni	India
G. Cata-Danil	Romania	V. A. Matveev	Russian Federation	Š. Šaro	Slovak Republic
Chen Hesheng	People's Republic of China	G. van Middelkoop	Netherlands	N. M. Shumeiko	Republic of Belarus
A. Dujsebaev	Republic of Kazakhstan	R. Mir-Kasimov	Republic of Azerbaijan	A. N. Skrinsky	Russian Federation
D. Ellis	Switzerland	T. M. Muminov	Republic of Uzbekistan	R. Sosnowski	Republic of Poland
A. Hrynkiewicz	Republic of Poland	Yu. Musakhanov	Republic of Uzbekistan	P. Spillantini	Italy
Hwan Sok Hwa	D. P. Republic of Korea	D. L. Nagy	Hungary	G. Stratan	Romania
J. Janik	Republic of Poland	Nguyen Manh Shat	Socialist Republic of Vietnam	A. N. Tavkhelidze	Georgia
V. G. Kadyshevsky	Russian Federation	Nguyen Van Hieu	Socialist Republic of Vietnam	A. Wagner	Germany
V. G. Kantser	Republic of Moldova	V. N. Okolovich	Republic of Kazakhstan	I. Wilhelm	Czech Republic
N. S. Kazak	Republic of Belarus	Yu. A. Osipian	Russian Federation	G. M. Zinoviev	Ukraine

Programme Advisory Committee for Particle Physics

Chairperson: T. Hallman (USA)
Scientific Secretary: Yu. A. Gornushkin

Programme Advisory Committee for Nuclear Physics

Chairperson: N. Janeva (Bulgaria)
Scientific Secretary: N. K. Skobelev

Programme Advisory Committee for Condensed Matter Physics

Chairperson: W. Nawrocik (Poland)
Scientific Secretary: S. I. Tyutyunnikov

INTERNAL ORGANIZATION OF THE JOINT INSTITUTE FOR NUCLEAR RESEARCH

DIRECTORATE

Director A. N. Sissakian

Vice-Director M. G. Itkis

Vice-Director R. Lednický

Chief Scientific Secretary N. A. Russakovich

Chief Engineer G. D. Shirkov

Bogoliubov Laboratory of Theoretical Physics

Director
A. N. Sissakian

Research in

- symmetry properties of elementary particles
- field theory structures
- interactions of elementary particles
- theory of atomic nuclei
- theory of condensed matter

Veksler and Baldin Laboratory of High Energies

Director
A. I. Malakhov

Research in

- structure of nucleons
- strong interactions of particles
- resonance phenomena in particle interactions
- electromagnetic interactions
- relativistic nuclear physics
- particle acceleration techniques
- interactions of multicharged ions in a wide energy range

Dzhelepov Laboratory of Nuclear Problems

Director
A. G. Olchevski

Research in

- strong, weak and electromagnetic interactions of particles, particle structure
- nuclear structure
- nuclear spectroscopy
- mesoatomic and mesomolecular processes
- particle acceleration techniques
- radiobiology

Flerov Laboratory of Nuclear Reactions

Director
M. G. Itkis

Research in

- properties of heavy elements, fusion and fission of complex nuclei, cluster radioactivity, reactions on an isomer hafnium target
- reactions with beams of radioactive nuclei, structure of neutron-rich light nuclei, non-equilibrium processes
- interactions of heavy ions with condensed matter
- particle acceleration techniques

Frank Laboratory of Neutron Physics

Director
A. V. Belushkin

Research in

- nuclei by neutron spectroscopy methods
- fundamental properties of neutrons
- atomic structure and dynamics of solids and liquids
- high-temperature superconductivity
- reactions on light nuclei
- materials by neutron scattering, neutron activation analysis and neutron radiography methods
- dynamic characteristics of the pulsed reactor IBR-2

Laboratory of Information Technologies

Director
V. V. Ivanov

Research in

- provision of operation and development of the JINR computing and networking infrastructure
- optimal usage of international computer networks and information systems
- modern methods of computer physics, development of standard software

Laboratory of Particle Physics

Director
V. D. Kekelidze

Research in

- elementary particle physics at external accelerators to study particle structure and interaction laws
- development of instruments and methods for investigation of elementary particles
- development of methods and systems for acceleration of particles to super-high energies

Laboratory of Radiation Biology

Director
E. A. Krasavin

Research in

- radiation fields
- genetic effect of ionizing radiation
- radiation monitoring

University Centre

Director
D. V. Fursaev

Central Services

- central scientific and information departments
- administrative and economic units
- manufacturing units

full-scale IREN project to its first stage (LINAC with a non-multiplying target, and a stand for applied research) scheduled for completion by the end of 2007.

The Scientific Council took note of the presentations made by the JINR Director, based on the written reports prepared by the Laboratories, and by the representatives of the PACs, and endorsed the JINR Topical Plan of Research and International Cooperation for 2006.

Taking into account the proposals of the JINR Directorate and the recommendations of the PACs, the Scientific Council endorsed the following priority activities in 2006 on which financial and manpower resources should be focused:

In-house facilities:

— operation and development of the Nuclotron accelerator complex, obtaining of a wider range of accelerated particles and nuclei, improvement of the beam extraction system; acceleration of deuterons up to the maximum energy of 6 GeV/nucleon and the installation of a polarized ion source for increasing the intensity of deuterons up to 10^{10} per cycle;
— modernization of the IBR-2 reactor according to the schedule of activities approved by the agreement between JINR and the Russian Agency for Atomic Energy;
— completion of the dismantling of the IBR-30 reactor, assembly and complex tests of subsystems of the LUE-200 accelerator in the context of completion of the first stage of the IREN project in 2007;
— reconstruction of the FLNR accelerators; optimization of the parameters of the ^{6}He beams produced at the DRIBs accelerator complex;
— recovery of the Phasotron and of the beam transportation channel to the Hadron Therapy Complex;
— further development of JINR's telecommunication links, networking, computing and information infrastructure, including Grid technologies.

Ongoing research programmes and projects:

— theoretical studies in challenging issues of particle physics, modern mathematical physics, nuclear physics, condensed matter physics, and computational mathematics and physics, with a view to supporting experimental work at JINR and participating laboratories;
— continued participation in frontier experiments aimed at studying the fundamental properties of elementary particles and their interactions, as well as the spin structure of nucleons; study of rare, weak processes aimed at verification of the Standard Model of particle interactions and the search for new physics phenomena beyond this Model; precise measurement of direct CP violation; thorough investigations of the nature and properties of the neutrino at high, low and intermediate energies, participation in high-energy physics experiments at accelerator facilities at IHEP (Protvino), CERN, DESY, BNL, and FNAL;
— participation in the construction of accelerator subsystems for the LHC and in the R&D for the ILC, as well as development of promising accelerator technologies;
— continuation of relativistic nuclear interaction studies focused on the search for manifestations of quark and gluon degrees of freedom in nuclei and on the properties of nuclear matter at high energies, as well as studies of the spin structure of the lightest nuclei; experiments at the Nuclotron (JINR), as well as experiments at the accelerators of CERN, BNL (RHIC), GSI (SIS), and RIKEN;
— study of reactions being promising for the synthesis of superheavy elements with $Z > 118$; physical and chemical studies of transactinide nuclei, including their direct mass identification using the MASHA mass analyser; alpha, beta and gamma spectroscopy of transfermium nuclei; experiments with beams of the ^{6}He and ^{8}He radioactive ions;
— continuation of research in the field of nuclear physics with neutrons, including investigations of the fundamental symmetries in neutron–nucleus interactions and of the properties of the neutron; continuation of applied research activities concerning the REGATA project (biomonitoring) and the R&D of neutron detectors for spacecrafts;
— condensed matter studies by neutron scattering; research and development of spectrometers, detectors, sample environment systems and data acquisition systems for the IBR-2 reactor complex;
— investigation of the effects of ionizing radiation with different physical characteristics on the genetic structures of cells; studies of molecular photo- and radiobiological processes in the proteins of the human eye;
— studies and practical work in the field of cancer treatment at the medical beams of the Phasotron and at the new ion beam of the Nuclotron, with dedicated financial support coming mainly from non-budgetary sources;
— development of the JINR Educational Programme, including special-purpose training of specialists for Member States, implementation of the project «Dubna International Advanced School of Theoretical Physics», annually held summer student practical courses in the JINR fields of research, and involvement in work at JINR laboratories of students and graduates from leading higher-education institutions of Member States.

The Scientific Council reiterated the need for coordination of various activities in the field of biomedical physics in connection with information technology and the «innovation belt».

Recommendations in connection with the PACs

The Scientific Council concurred with the recommendations made by the PACs at their November 2005 meetings, as reported at this session by Professors T. Hallman, N. Janeva, and W. Nawrocik.

Particle Physics Issues. The Scientific Council endorsed the main lines of the JINR Programme of Particle and Relativistic Nuclear Physics Research for the period 2006–2008.

The Scientific Council noted that the road map in the field of particle physics reflects the Institute's desire to continue the participation of JINR scientists in large international projects as well as the Institute's commitments for further development of the Nuclotron and its experimental programme. The recommendations of the PAC concerning incorporation of the assumed manpower and funding profiles into the road map were taken into account.

The Scientific Council concurred with the PAC that compelling future programme of particle physics being planned by JINR should be visible in a world view and recommended JINR's participation in the open symposium planned by the CERN Council Strategy Group to develop a strategic plan for the future of high-energy physics in Europe.

The Scientific Council strongly supported the PAC's recommendations on the preparation of the software and computing capability at JINR to allow JINR scientists to produce first scientific results in the CMS, ATLAS and ALICE experiments at the time of LHC start-up and was pleased to note the successful ongoing activity in this area.

The Scientific Council supported the recommendations of the PAC on the new projects («Measurement of the Rare Decay $K^+ \to \pi^+ \nu\overline{\nu}$ in the Experiment at the CERN SPS», «Experiments with Charged Kaons at the Separated Kaon Beam of IHEP's Accelerator», and «A Study of Asymmetries of the Spin- and Structure-Dependent Interactions of Nucleons in Experiments with Polarized Targets and Beams»), on the continuation of the current activities beyond 2005, and on the closure of 14 projects as outlined in the PAC report.

Nuclear Physics Issues. The Scientific Council endorsed the main lines of the JINR Programme of Nuclear Physics Research for the period 2006–2008.

The Scientific Council noted that the upgrade of the U400M–U400 accelerator complex is essential for the challenging research programme of FLNR and for maintaining its leadership in the field. The acceleration of low-energy beams at U400M should be realized with particular urgency. These would allow an uninterrupted running of experiments during the modernization of U400.

The Scientific Council took note of the PAC's conclusions concerning the future of the IREN project.

The Scientific Council took note of the status of the project «Subcritical Assembly at Dubna» (SAD project). It recommends continuation of the collaboration between the SAD project and the Integrated Project EUROTRANS with the support of the International Science and Technology Centre (ISTC). The PAC recommended that the FLNP and DLNP directorates consider the possibility of including SAD in the JINR Topical Plan of Research as a separate theme of first priority.

The Scientific Council supported the recommendations of the PAC on the continuation of the current activities beyond 2005 as outlined in the PAC report.

Condensed Matter Physics Issues. The Scientific Council endorsed the main lines of the JINR Programme of Condensed Matter Physics Research for the period 2006–2008.

The Scientific Council reiterated the high priority of the modernization of the IBR-2 reactor for scientific research in condensed matter physics and life sciences. It took note of the funding of this activity in 2005 in accordance with the agreement between the Russian Federal Agency for Atomic Energy and JINR, and expected that the JINR and FLNP directorates would take all necessary measures to continue this work according to schedule.

The Scientific Council shared the concern of the PAC that the momentum of the condensed matter programme should be maintained over the shutdown period of the IBR-2 reactor in 2007–2010. It urged the FLNP Directorate to undertake necessary steps to secure the continuing research activity of young scientists based at JINR in this field.

The Scientific Council noted the plans discussed by the PAC for the development of spectrometers at IBR-2 in accordance with the needs of the Institute's strategic research programme in condensed matter physics.

The Scientific Council noted the opinion of the PAC concerning the new project «Free-Electron Lasers Based on LINAC-800». The PAC welcomed proposals to strengthen the JINR programmes in condensed matter science, and in this context was keen to keep a watching brief on the FEL project. However, it believed that this new project should be considered again when it was more mature.

The Scientific Council supported the recommendations of the PAC on the continuation of the current activities beyond 2005 as outlined in the PAC report.

The Scientific Council thanked Professor N. Rowley for his very successful work as Chairperson of the PAC for Nuclear Physics.

As proposed by the JINR Directorate, the Scientific Council appointed Professor N. Janeva (INRNE, Sofia, Bulgaria) as Chairperson of the PAC for Nuclear Physics for a term of one year, and Professor W. Greiner (IAS, Frankfurt am Main, Germany) as a new member of this PAC for a term of three years.

The Scientific Council endorsed the amendment in the «Rules of Procedure of the JINR Scientific Council» concerning the position of executive co-chairman of the

Scientific Council, and recommended that the Committee of Plenipotentiaries approve this amendment.

The Scientific Council approved the Jury's recommendations on the JINR prizes for 2005.

The Scientific Council congratulated Professors S. Mikheyev (Institute for Nuclear Research (INR), Moscow), A. Smirnov (INR, Moscow, and ICTP, Trieste, Italy) and L. Wolfenstein (Carnegie Mellon University, Pittsburg, USA) on being awarded the 2005 Pontecorvo Prize for the prediction and study of the influence of matter on neutrino oscillations, now known as the MSW (Mikheyev–Smirnov–Wolfenstein) effect.

The Scientific Council endorsed the JINR Directorate's proposals to award the title «Honorary Doctor of JINR» to Professors J. Dietrich (Germany), N. Rowley (France), Č. Šimane (Czechia), and A. Skrinsky (Russia), in recognition of their outstanding contributions to the advancement of science and the education of young scientists, and congratulated them.

The Scientific Council congratulated FLNP Chief Engineer V. Ananiev on being awarded the Russian Order of Honour, in recognition of his long and successful professional activity, as well as Professor E. Donets (VBLHE) and his team of researchers on receiving the International Ion Source Prize «Brightness Award» for the work «Development of an Electron String Source of Highly Charged Ions».

The 100th session of the JINR Scientific Council, chaired by JINR Director A. Sissakian, took place in Dubna on 27 March.

Professor I. Wilhelm (Czech Republic) was elected co-chairman of the Scientific Council.

Professor Č. Šimane, member of the 1st session of the JINR Scientific Council (24–26 September 1956), addressed the participants with a message of greetings on the occasion of JINR's jubilee. JINR Director A. Sissakian presented a report «50 Years of JINR».

The awarding of the Bogoliubov Prize took place at the session; one of the laureates — Professor V. Kadyshevsky, Scientific Leader of JINR, made a presentation on the subject of his research.

The following reports were presented at the session: «Dubnium-105» by Yu. Oganessian, «CERN–JINR Cooperation» by J. Engelen, «Science Bringing Nations Together» by V. Kadyshevsky, «Participation of Russian Scientists in the JINR Research Programme» by I. Meshkov, «Cooperation between Scientists of JINR and European Research Centres in Nuclear Physics» by S. Galés, «Cooperation between Scientists of JINR and Bulgaria in the Research in the Field of Environmental Monitoring» by J. Stamenov, «Participation of JINR Physicists in Experiments at BNL and Fermilab (USA)» by T. Hallman, «Cooperation between DESY (Germany) and JINR» by A. Wagner, «Joint Activities in the Field of Education within the Framework of the Bogoliubov–Infeld Programme» by W. Nawrocik, «JINR's Participation in the Construction of the Cyclotron Centre of the Slovak Republic» by J. Ružička, «Participation of JINR Scientists in Joint Experiments at PSI (Switzerland)» by R. Eichler, «Participation of JINR Scientists in Experiments at the ILL Reactor (France)» by R. Wagner, and «Cooperation between Physicists of JINR and Italy» by P. Spillantini.

The presentation of diplomas to the winners of JINR prizes for 2005 took place at the session. The Scientific Council appreciated the report «50 Years of JINR» presented by JINR Director A. Sissakian in the context of the Institute's international cooperation in science, technology and education.

The Scientific Council highly appreciated the new steps taken by the JINR Directorate to develop international collaboration. In particular, it noted the recent signing of «The Memorandum of Understanding between JINR and the Government of the Republic of South Africa through Its Department of Science and Technology» concerning cooperation in the research programmes of mutual interest and dedicated funding.

On the occasion of the 50th anniversary of the Joint Institute for Nuclear Research, the Scientific Council wished to express its deep satisfaction with the outstanding contributions made by the Institute to the advancement of science and technology over the five decades of its existence. Since its foundation in 1956, excellent research in various fields of modern physics, in accelerator and reactor engineering has been carried out at JINR, and specialists of the highest qualification have been trained here. All this has enabled JINR to evolve into an internationally recognized centre for fundamental research. In those festive days for the Joint Institute, the Council members extended their sincere congratulations to the veterans of JINR, its entire personnel and the Directorate, who have good reason to be proud of this Institute's many remarkable achievements.

The Scientific Council also wished to express its confidence that JINR would successfully continue in the future to maintain its role as a major scientific centre of world importance by participating in international collaborations, by developing first-class local facilities and attracting outside users. The Scientific Council reiterated its support of the strategic plan for the further development of JINR's scientific research in the fields of particle physics, nuclear physics, and condensed matter physics, as well as of its education and innovation activities for the next 10 years, being actively elaborated by the Institute's Directorate and discussed at the Council sessions.

The Scientific Council appreciated the report «Dubnium-105» presented by FLNR Scientific Leader Yu. Oganessian and thanked the speaker.

The Laboratory staff, under the leadership of RAS Academician Yu. Oganessian, succeeded in making a breakthrough in the synthesis of superheavy elements

and in the understanding of the factors which influence their enhanced stability. Due to the achieved high quality of the heavy ion beams and to the considerable improvement of the experimental methods, a large programme aimed at the synthesis of superheavy elements was started. As a result, the new elements with atomic numbers 113, 114, 115, 116 and 118 were synthesized for the first time. An official claim for the discovery of these elements has been submitted to the International Union of Pure and Applied Chemistry.

The Scientific Council was pleased to note the extensive international cooperation between JINR and research institutions of the Member States and other countries. At present, JINR collaborates with nearly 700 scientific centres and universities in 60 countries of the world. Together with participation in joint research programmes, this cooperation includes JINR's scientific and technical assistance in the development and construction of large facilities for the Member States. Another important form of JINR's cooperation is the organization of scientific conferences, schools for young scientists, and exhibitions, in particular the CERN–JINR exhibition «Science Bringing Nations Together», which has been regularly held since 1996 in many countries and institutions.

Examples of this ongoing cooperation were highlighted at this session by Professors J. Engelen (CERN), V. Kadyshevsky (JINR), I. Meshkov (JINR), S. Galés (France), J. Stamenov (Bulgaria), T. Hallman (USA), A. Wagner (Germany), W. Nawrocik (Poland), J. Ružička (Slovakia), R. Eichler (Switzerland), R. Wagner (France), and P. Spillantini (Italy).

The Scientific Council congratulated Professors V. Kadyshevsky (JINR) and J. Wess (Max Planck Institute of Physics, Munich, Germany) on being awarded the Bogoliubov Prize for the years 2003–2005, in recognition of their outstanding contributions to theoretical physics, in particular to the development of novel algebraic and geometric approaches to the formulation of quantum field theory.

The Scientific Council congratulated the laureates of the 2005 JINR prizes — winners of the annual scientific research competition in the fields of theoretical physics, experimental physics, physics instruments and methods, and applied physics.

In a secret ballot the Scientific Council elected Professor I. Wilhelm (Czech Republic) as executive co-chairman of the Scientific Council for a term of three years.

MEETING OF THE JINR FINANCE COMMITTEE

A regular meeting of the JINR Finance Committee was held in Dubna on 16–17 February. It was chaired by A. Volodin, representative of the Government of the Russian Federation.

The Finance Committee took note of the report presented by JINR Director A. Sissakian «Implementation of the Recommendations of the JINR Scientific Council and of the Decisions of the JINR Committee of Plenipotentiaries (CP) Concerning JINR's Activity in 2005; Plans of the Institute for 2006».

The Finance Committee endorsed the activity of the Institute Directorate on the implementation of the JINR Plan of Research and International Cooperation in 2005, on the realization of collaborative research programmes with the Member States, and on the involvement of new scientific partners at JINR. The Committee acknowledged the achievements of the Institute's staff in the implementation of the scientific programme in 2005.

The Finance Committee supported the Directorate's activity on the development of the Institute's long-term scientific programme (the road map) and on the preparation, in its context, of the JINR Topical Plan of Research for the year 2007, as well as the activity for the creation of an «innovation belt» around JINR in the special economic zone in Dubna. The Committee also supported the Directorate's efforts to optimize the structure of the JINR management.

The Finance Committee took note of the report by the JINR Assistant Director for Financial and Economic Issues, V. Katrasev, on the results of the audit review of the Institute's financial activity during 2004 and recommended that the Committee of Plenipotentiaries approve the auditors' conclusion and the plan of the audit review of the financial activity in 2005, presented by the Directorate. It was also recommended that the CP extend for another year the powers of the MS-Audit company, registered in Dubna, to review the Institute's financial activity in 2005.

Based on the report by V. Katrasev on the execution of the JINR budget in 2005, on the draft budget for 2006 and on the estimate of the Member States' contributions for 2007, the Finance Committee endorsed the report presented by the Directorate on the execution of the JINR budget in 2004: in expenditure — US$34 319.9 thousand, with the summary account as of 01.01.2005 being US$246 337.0 thousand. It also noted the information on the execution of the JINR budget in 2005: in expenditure — US$38 662.1 thousand and in income — US$36 881.8 thousand, and recommended

that the CP approve the budget for 2006 with the total expenditure amounting to US$37.706 million.

Considering the importance of the implementation of the strategic plan of JINR's development, of the efforts to optimize the structure of the JINR management, of raising staff salaries, of the Directorate's plans in the area of innovation development within the free economic zone in Dubna, and the need to compensate the level of inflation in recent years in the host country of JINR, the Finance Committee took a decision concerning transition to the second stage of implementation of the «Programme of Debt Restructuring and Reforming the System of Calculation and Payment of the Member States' Contributions for 2004–2010», with an increase of the JINR budget beginning in 2007. The estimate of the budget for 2007 in income and expenditure was set to US$46.2 million. The provisional sums of the Member States' contributions and the debt payments for 2007 were recommended for approval after their final consideration before the meeting of the Committee of Plenipotentiaries in March 2006.

In accordance with the CP decision, the Finance Committee endorsed the agreement, dated 20 January 2005, between the JINR Directorate and the Plenipotentiary of the Government of Armenia to JINR concerning the restructuring of the debt and implementation of the obligations for the payment of contributions for the years 2002–2003. It also agreed with the proposed scheme of payments of the restructured debt by the Government of Georgia to the JINR budget.

Based on the report «On Basic Documents Regulating the Financial Activity of JINR», presented by the Assistant to the JINR Director for Innovative Development, A. Ruzaev, the Finance Committee took note of the information about the current preparation of the documents «Internal Financial Rules» and «Regulation for the Purchase and Sale of Equipment, Stock and Other Objects», and considered it expedient to approve them at the next meeting, after the completion of work on the reorganization of the structure of the Institute management.

MEETINGS OF THE JINR PROGRAMME ADVISORY COMMITTEES

The 24th meeting of the PAC for Condensed Matter Physics was held on 3–4 April. It was chaired by Professor W. Nawrocik.

JINR Chief Scientific Secretary N. Russakovich informed the PAC about the resolutions of the 99th (January 2006) and 100th (March 2006) sessions of the Scientific Council and about the decisions of the Committee of Plenipotentiaries (March 2006).

The PAC thanked V. Kadyshevsky, Ts. Vylov and V. Zhabitsky for their successful work as members of the JINR Directorate, in particular for the support they rendered to the condensed matter physics research at the Institute during 1992–2005.

The PAC congratulated the Joint Institute for Nuclear Research on its 50th anniversary and wished its international staff continuing scientific success in the future.

The PAC appreciated the visit to the Nuclotron and the explanations given by VBLHE Deputy Director N. Agapov.

IBR-2 reactor. The PAC was informed by V. Ananiev about the status of the modernization of the IBR-2 reactor. The PAC expected that the JINR and FLNP directorates would take all necessary measures to ensure the continuation of the work for IBR-2 modernization according to schedule.

Programme of condensed matter physics research for the period of IBR-2 shutdown. The PAC took note of A. Balagurov's report on the planned scientific investigations, instrument developments and educational programme in the FLNP Condensed Matter Department for 2007–2010 during the shutdown of the IBR-2 reactor. The PAC noted that the shutdown of the reactor gives an opportunity for the development of new spectrometers and the upgrade of the existing ones. The PAC recommended that a strategic programme of instrument development and upgrade for the reactor be established, taking into account the constraints of the JINR budget, and that the rationale for the proposed upgrades be defined in terms of strategic scientific developments, user requirements and suitability for the IBR-2 operational parameters.

Prospects for the development of synchrotron radiation and neutron sources in Russia. The PAC heard with interest the report by V. Aksenov about the national research programme being developed in Russia «Investigations of Nanosystems and Materials with the Use of SR and Neutrons» and about the situation with synchrotron and neutron sources in Russia, in particular at the RRC Kurchatov Institute. The PAC noted that the opportunities for condensed matter research with in-development and existing instrumentation at the synchrotron and neutron sources of the Kurchatov Institute would be useful for the realization of the JINR road map in condensed matter physics during the IBR-2 shutdown.

Recommendation for the expiring theme. The PAC took note of the report on the theme previously

approved for completion in 2006 «Further Development of Methods and Instrumentation for Radiotherapy and Associated Diagnostics with JINR Hadron Beams», presented by G. Mitsin, and recommended extension of this activity for three years. The PAC considers the JINR Radiotherapy Programme to be of the highest international standard, both with respect to research and development and with respect to clinical applications.

Scientific reports. The PAC noted with interest the following scientific reports: «On Coherent Light Amplification in Rhodopsin Media» presented by M. Altaisky, «Neutron Research of Nanosystems at FLNP» presented by M. Avdeev, and «Development and Research of Nanostructured Objects» presented by V. Reutov.

Neutron activation analysis studies at FLNP. The PAC appreciated the cooperation between the FLNP Sector of Neutron Activation Analysis and the International Atomic Energy Agency covered by M. Frontasyeva in her report «Neutron Activation Analysis at FLNP: Ten Years' Experience of Collaboration with IAEA», as well as the plans for research in the field of life sciences proposed for the shutdown period of the IBR-2 reactor in 2007–2010. The PAC supported the idea of establishing an Analytical Centre of Excellence at FLNP based on nuclear and related analytical techniques: instrumental neutron activation analysis, atomic absorption spectrometry, and ion-coupled emission mass spectrometry.

Poster presentations by FLNP young scientists. The PAC appreciated the poster presentations of scientific research and instrumentation development in condensed mater physics by seventeen FLNP young scientists, and noted the wide range and the high quality of these activities.

The 24th meeting of the Programme Advisory Committee for Nuclear Physics was held on 6–7 April. It was chaired by Professor N. Janeva.

The PAC was informed about the implementation of recommendations taken at the previous meeting, about the resolutions of the 99th (January 2005) and 100th (March 2006) sessions of the JINR Scientific Council, and about the decisions of the Committee of Plenipotentiaries (March 2006 meeting).

The PAC extended cordial congratulations to the Joint Institute for Nuclear Research on its 50th anniversary and best wishes for the successful development in the future. It noted the appointment by the Committee of Plenipotentiaries of M. Itkis and R. Lednický as Vice-Directors of JINR, N. Russakovich as Chief Scientific Secretary of JINR, and G. Shirkov as Chief Engineer of JINR for the term of office of the new Director of JINR, A. Sissakian, till 1 January 2011.

The PAC thanked V. Kadyshevsky, Ts. Vylov and V. Zhabitsky for their successful work as members of the JINR Directorate during 1992–2005 and Professor N. Rowley for his outstanding contribution to the activity of the PAC for Nuclear Physics and for his successful work as its Chairperson.

The PAC considered three themes previously approved for completion in 2006, heard information about the future trends of the scientific and technical cooperation between JINR and the Department of Science and Technology of the Government of the Republic of South Africa, information about latest results on γ-spectroscopy experiments with heavy nuclei at FLNR, status of the GEMMA experiment, the scientific programme for the 1st stage of the IREN facility, and a scientific report.

The PAC made the following recommendations on the considered questions.

Extension of themes previously approved for completion in 2006. Concerning the theme «Investigation of Fundamental Interactions in Nuclei at Low Energies», the PAC was impressed by the progress achieved and by the wide range of DLNP investigations of neutrinoless double beta decay, neutrino magnetic moment, dark matter search, nuclear astrophysics as well as nuclear spectroscopy as their methodological basis. The PAC stressed the importance of the non-accelerator physics to which the Dubna groups contribute in an absolutely significant way.

The PAC heard with interest a report on the themes «Development of the FLNR Cyclotron Complex for Producing Intense Beams of Accelerated Ions of Stable and Radioactive Isotopes» and «Development and Construction of an Accelerator Complex for Producing Radioactive Ion Beams». It was pleased to note the satisfactory progress of the DRIBs-I project, specifically the optimization of the ^{6}He beam. The PAC wished the Flerov Laboratory to present at the next meeting a report clarifying the situation with Phase II of the DRIBs project, in particular the considerations of costs including those related to the radiation protection. The PAC would also appreciate to be informed about the present situation concerning the possibility to synthesize superheavy elements with heavy radioactive beams.

The PAC heard with interest a report on the results of the activities concerning the «Improvement and Development of the JINR Phasotron for Fundamental and Applied Research». It was noted that development and maintenance of the Phasotron is especially important for the SAD project and the proton therapy.

The PAC recommended extension of these three themes for the years 2007–2009 with first priority.

Cooperation with the Republic of South Africa. The PAC was informed by D. Kamanin about the future trends of the scientific and technical cooperation between JINR and the Department of Science and Technology of the Government of the Republic of South Africa, based on the Memorandum of Understanding between the two parties signed in October 2005.

Gamma spectroscopy experiments with heavy nuclei. The PAC was pleased to hear the report «Latest Results on γ-Spectroscopy Experiments with Heavy Nuclei at FLNR», presented by K. Hauschild (CSNSM, IN2P3-CNRS, Orsay, France). It was noted that the first results obtained by the FLNR physicists in cooperation with Orsay and Strasbourg are very promising, and that this line of research deserves a strong support. The PAC recommended allocation of one month of beam time for these experiments in 2006. The PAC also strongly encouraged further developments in γ spectroscopy at the Flerov Laboratory.

Status of the GEMMA experiment. The PAC heard with great interest a report on first GEMMA-1 results on neutrino magnetic moment measurements in the neutrino beam of the Kalinin reactor. The upper limit reached by the JINR–ITEP group demonstrates the significant potential of this method for future GEMMA 2 and 3. The PAC stressed that construction of the new neutrino laboratory at the Kalinin NPP and its extension should be supported by JINR as an essential step in the development of this original approach in reactor neutrino physics. The PAC recommended continuation of this experiment in the next three years with first priority.

Scientific programme for the 1st stage of the IREN facility. The PAC was pleased to hear the FLNP Directorate's information concerning the successful finishing of dismantling IBR-30 and the recent progress in the creation and adjustment of LINAC components for IREN. The PAC appreciated the high quality of the proposed scientific programme and the work plan with cost assessments for the 1st stage of the IREN facility. The PAC recommended that the JINR and FLNP directorates maintain the momentum of the project implementation, extend cooperation with other laboratories and institutions to construct by the end of 2007 the 1st stage of IREN, including the electron accelerator, the stand for applied research, and the neutron production target.

Scientific report. The PAC heard with interest the scientific report «Pseudo-spin Symmetry in the Structure of Superheavy Nuclei», presented by R. Jolos.

The 25th meeting of the Programme Advisory Committee for Particle Physics was held on 20–21 April. It was chaired by Professor T. Hallman.

The PAC for Particle Physics took note of the information presented by JINR Chief Scientific Secretary N. Russakovich on the resolutions of the 99th and 100th sessions of the JINR Scientific Council (January, March 2006) and on the decisions of the JINR Committee of Plenipotentiaries (CP) (March 2006 meeting). The PAC wished the members of the new Directorate, elected at the CP session, success in their efforts to preserve and strengthen the position of JINR as an international scientific centre of excellence in which frontier physics research is integrated with the development and application of advanced technologies and with university education.

The PAC was pleased to note the decision taken by the CP to increase the JINR budget beginning in 2007 and urged that the Member States work diligently to meet their planned commitments now and in the future so that the exciting programme of world-leading science planned at JINR can be fully carried out.

On the occasion of the 50th anniversary of JINR, the PAC congratulated the Institute on its outstanding contributions to the advancement of science and technology made since its foundation and wished its staff success in implementing its future research programme based on the extensive international scientific cooperation.

The PAC congratulated Professor V. Kekelidze on his re-election for a new term as Spokesperson of the NA48/2 experiment at CERN.

The PAC took note of the report presented by JINR Deputy Chief Engineer G. Trubnikov on the status of the JINR basic facilities, and appreciated their stable operation in 2005 according to schedule, as well as their further development.

Much attention at the meeting was given to the current experiments and the programme of future physics studies at the Nuclotron. The PAC expressed its deep concern about the absence of the intense beams of polarized deuterons and heavy nuclei, needed for the planned experiments. The PAC recommended closure of projects like DELTA–SIGMA and SPIN if the necessary accelerator performance cannot be achieved within a year.

Taking into account the recommendation of the JINR Scientific Council to study the experimental feasibility of the mixed phase of strongly interacting matter at the Nuclotron, the PAC recommended that the VBLHE Directorate investigate this subject and present a detailed report on this topic at the next meeting.

The PAC noted with interest the information on the preparation of the XXXIII International Conference on High Energy Physics (Moscow, 26 July – 2 August 2006), presented by A. Sissakian, vice chairman of the Conference Organizing Committee. The PAC appreciated the effort of JINR and its special role in hosting this large conference in Russia again after a long period of time since the previous Rochester Conference in Dubna (1964). The PAC also noted the significant number of contributions planned to be presented by JINR scientists to this conference.

The PAC took note of the detailed plan of the participation of JINR's group in obtaining physics results in the ATLAS experiment at the time of the LHC start-up. The PAC noted that the JINR/ATLAS team had proposed an exciting research programme for addressing a number of key high-energy physics problems in first LHC experiments and in a longer-term perspective. The PAC strongly encouraged the JINR/ATLAS team to fully integrate their analysis and software develop-

ments and infrastructure with the core ATLAS analysis effort based at CERN.

The PAC noted the significant contribution made by VBLHE physicists to the construction and commissioning of the HADES spectrometer, to the software development and data analysis.

Several projects and themes, previously approved for completion in 2006, were considered at the session. The projects OPERA, NA48, E391a at PS KEK, DELTA-2, BOREXINO, SANC, HERMES, F-cluster, STRELA, H1, as well as the theme «Particle Accelerator Physics and Engineering», were recommended to be extended until the end of 2009. Significant achievements in each of these activities were noted.

The PAC noted the importance of the Med-Nuclotron project for developing effective protocols for the treatment of cancer, and urged that a strong effort be made by the JINR Directorate to secure non-budgetary resources so that the construction of the new facility planned for this purpose can be achieved.

The PAC noted with interest the reports presented at the session: «Search for a Mixed Phase of Strongly Interacting Matter at the Nuclotron», «The Facility for Antiproton and Ion Research (FAIR) at Darmstadt (Germany)», «Some Results Obtained in the PHENIX Experiment (VBLHE's Contribution)», «Application of Nuclear Physics Methods for Identification of Complex Chemical Substances», «Project of Upgrade of the DAFNE Accelerator (Frascati, Italy) and the Associated Programme».

The 25th meeting of the Programme Advisory Committee for Nuclear Physics was held on 13–14 November. It was chaired by Professor N. Janeva.

The PAC heard a report on the implementation of the recommendations of the previous meeting and information about the operation and development of the JINR basic facilities. The PAC heard reports of three research themes, proposals for new projects, and discussed the Programme of Nuclear Physics Research for 2007–2009. Also presented to the PAC were status reports on the LESI and SAD projects and a scientific report.

The PAC made the following recommendations on the considered questions.

Extension of themes previously approved for completion in 2006. The PAC discussed in detail the investigations performed during the past three years within the theme «Synthesis of New Nuclei and Study of Nuclear Properties and Heavy-Ion Reaction Mechanisms». The PAC was impressed by the results that had been achieved: discovery of new superheavy elements and investigation of their nuclear and chemical properties, studies of reactions induced by stable and radioactive ion beams, nuclear spectroscopy of heaviest isotopes, production and structure studies of exotic light radioactive nuclei. The PAC recommended extension of this theme for the years 2007–2009 with first priority.

The PAC was satisfied with the progress made and with the wide range of DLNP investigations in intermediate-energy physics, particularly in the projects PIBETA, ANKE COSY, Mu-CATALYSIS and MUON. The PAC recommended extension of the theme «Nuclear and Particle Interactions at Intermediate Energies» for the years 2007–2009 with first priority.

The PAC heard the information of the FLNP Directorate about the recent progress in the development and adjustment of LINAC components, and recommended extension of the theme «Construction of the IREN Facility (IREN Project)» for one year with the tasks: completion of the assembly of the LUE-200 accelerator and preparation for commissioning the accelerator.

Proposals of new activities. The PAC welcomed a new project on the participation of DLNP's group in the EDELWEISS-II experiment aimed at searching for cold Dark Matter with cryogenic detectors at Frejus underground laboratory. Recognizing JINR's experience in extremely low-background physics and the previous results of the EDELWEISS-I phase, the JINR contribution to the next phase of the experiment should be essential and useful for the development of the project. The PAC considers the EDELWEISS-II project to be of high priority for DLNP, and recommended approval of the participation in it.

The PAC noted with interest a proposal «R&D of a Separator at the Beam of U400MR for γ-spectroscopic Investigations of Heavy Isotopes». The project should be presented at the next meeting of the PAC for approval and implementation.

LESI experiment. The PAC heard a report on first results of the experimental investigation of the dd interaction in the astrophysical energy region using the Hall plasma accelerator in the LESI experiment. With this accelerator it will be possible to study cross sections and astrophysical S-factors of the dd, pd, and d^3He reactions in the ultralow energy region with much higher accuracy, which is very essential for understanding the dynamics of stars. The PAC recommended continuation of the LESI project with first priority.

SAD project. The PAC noted the high scientific and practical importance of the SAD project, its high-quality technical background, as well as a successfully working team from five participating organizations. The PAC recommended that the JINR Directorate, together with the organizations that took part in the preparation of the SAD project and with the research institutions interested in the realization of the project, address the RF Agency for Atomic Energy in order to consider the urgency of SAD and the possibility of incorporating it into a corresponding research programme.

Programme of Nuclear Physics Research for 2007–2009. The PAC was informed by JINR Vice-Director M. Itkis about the preparation of the JINR Pro-

gramme of Nuclear Physics Research for 2007–2009. The PAC endorsed the proposals for the Programme of Nuclear Physics Research for this period, presented by the laboratories.

Bogoliubov Laboratory of Theoretical Physics. The PAC supported the research activities at BLTP focused on nuclear structure problems in nuclei near drip lines, halo nuclei, a search for the pseudospin symmetry, the fusion–fission reactions leading to superheavy compound nuclei, few-body systems, relativistic nuclear dynamics, phase transitions in relativistic heavy-ion collisions.

Dzhelepov Laboratory of Nuclear Problems. The PAC heard information on the scientific programme of nuclear physics research including experimental investigations of fundamental interactions in nuclei (fundamental properties of electron (anti)neutrino, neutrinoless double-beta decay, dark matter), study of nucleus and particle interactions at intermediate energies (rare processes, nuclear reaction mechanisms), as well as design studies of new cyclotrons and project development of specialized cyclotrons.

Flerov Laboratory of Nuclear Reactions. The research programme outlined for FLNR for the years 2007–2009 within the theme «Synthesis of New Nuclei and Study of Nuclear Properties and Heavy-Ion Reaction Mechanisms» is focused on major research areas.

The upgrade of the U400M — the realization of the mode for acceleration of ions up to 10 MeV/A — should be accomplished with particular urgency. Timely preparation of experimental equipment is an essential prerequisite for the implementation of the FLNR research programme.

Frank Laboratory of Neutron Physics. The PAC appreciated the extremely high quality of the proposed scientific programme of the theme «Nuclear Physics with Neutrons: Fundamental and Applied Investigations», noting that most of it has to be conducted at external neutron facilities in other laboratories until neutrons are again available at FLNP. The PAC also noted the timeliness to enhance detailed preparation of experiments to be carried out at IREN-1.

Laboratory of Information Technologies. The PAC heard a progress report on the development of the networking system of JINR and on Grid in particular, as well as on the computational physics results both of general interest and for solving specific problems on nuclear physics in collaboration with JINR laboratories. The PAC noted that the quality of service of the JINR networking should be further increased, the developments concerning Grid and parallel computing in nuclear physics should be vigorously pursued, and the mathematical support of experimental and theoretical studies at JINR, provided by the Laboratory, should be continued. To consider the impact of these activities on the JINR nuclear physics studies in more detail, the PAC would need some information on the allocation of the LIT personnel resources to particular tasks and on the opinion of other JINR laboratories concerning these studies.

The PAC heard with interest the report «Chemical Identification of Element 112 (114) Produced in the Reaction $^{48}Ca + ^{242}Pu$», presented by S. Dmitriev. The PAC appreciated this remarkable achievement of the Flerov Laboratory and strongly encouraged further developments in radiochemical studies of superheavy elements at this Laboratory.

The 25th meeting of the PAC for Condensed Matter Physics was held on 16–17 November. It was chaired by Professor W. Nawrocik.

JINR Vice-Director M. Itkis presented an overview of the main scientific tasks in the field of condensed matter physics at JINR and gave information about the expected funding of this field in 2007. The PAC appreciated the JINR Directorate's full support of the guaranteed financing of the IBR-2 modernization activities.

JINR Chief Scientific Secretary N. Russakovich informed the PAC about a new approach to the contents and template of the Topical Plan of Research and International Cooperation. The PAC looks forward to reconsidering the current project on radiotherapy and expects the presentation of a coherent plan of this programme at the forthcoming PAC meeting.

IBR-2 reactor and status of the cold moderators for IBR-2M. The PAC was informed by FLNP Chief Engineer V. Ananiev about the status of the modernization of the IBR-2 reactor. The PAC took note of the report, presented by E. Shabalin, on the status of the cold moderators for the IBR-2M reactor.

Scientific research programme for 2007–2009. The PAC took note of the proposals for the JINR road map in the field of condensed matter physics for 2007–2009, presented by the Directors of FLNP, LRB, FLNR, and BLTP, and recommended continuation of the activities under the themes in the fields according to the JINR Topical Plan.

The PAC appreciated the well-structured plan of research for the period of the IBR-2 modernization, noted the significant progress in the study of nanostructures at FLNR, as well as the successful collaboration between BLTP theorists and experimental physicists in other laboratories.

Priorities of the development and upgrade of spectrometers for IBR-2M. The PAC heard and considered the first plan for the priority developments and upgrade of spectrometers for the IBR-2M reactor, presented by A. Balagurov. The PAC recommended that JINR set up a group of JINR and external experts to carry out the ranking of the projects taking into account the foreseen construction of the broad-band moderators and current trends in modern condensed matter physics. The PAC looks forward to hearing about results of simulation calculations of all instruments, existing ones and new or

to be upgraded ones before a comprehensive evaluation where necessary.

Scientific reports. The PAC heard with interest the scientific report «MD Simulations of RecA Protein: The Influence of Amino Acid (Mutant) Exchanges in Beta-Sheet Loops and DNA Inhibition Sites» presented by Kh. Kholmurodov and R. Selwyne. The PAC noted the importance of the relationship between the theoretical calculations and experimental results.

The PAC heard with interest the scientific report «Utilizing IBR-2 as a Dedicated Medium- to Long-Pulse Neutron Source» presented by H. Tietze-Jaensch. The PAC supported the future collaboration between the groups of IBR-2 and ESS long-pulse neutron sources.

The PAC heard with interest the scientific report «Pressure-Induced Magnetic Phase Transitions in $Pr_{1-x}Sr_xMnO_3$ Manganites ($x = 0.3-0.85$)» presented by D. Kozlenko, noting it as a good example of neutron diffraction experimental study in the field of strongly correlated systems.

Poster presentations by JINR young scientists. The PAC noted with interest the poster presentations by young scientists in the fields of medicine, radiobiology and life sciences, and appreciated the wide range and the high quality of these activities.

Information on meetings. The PAC took note of the information about the V Workshop on Investigations at the IBR-2 Pulsed Reactor (Dubna, 14–17 June 2006), presented by S. Vasilovsky, and noted the special importance of this Workshop for the development and realization of the road map of the JINR research programme in condensed matter physics.

The PAC took note of the information about the introductory course and training «Neutron Applications at the IBR-2 Reactor» (Dubna, 1–8 October 2006) within the agreement between JINR and the Hungarian Academy of Sciences. The PAC appreciated this activity which contributes to the involvement of young scientists from the Member States to JINR.

The 26th meeting of the Programme Advisory Committee for Particle Physics was held on 23–24 November. It was chaired by Professor T. Hallman.

The PAC took note of the information presented by JINR Vice-Director R. Lednický on the preparation of the JINR Programme of Particle Physics Research for the years 2007–2009 in line with the main provisions of the road map — a strategic plan of the Institute's development. The reports of the Directors of the Institute Laboratories were also devoted to this Programme.

The PAC highly appreciated the success of the XXXIII International Conference on High Energy Physics (Moscow, 26 July – 2 August 2006) whose co-organizer was JINR.

JINR Chief Scientific Secretary N. Russakovich informed the PAC about the Directorate's intention to implement a new approach to the contents and template of the JINR Topical Plan of Research and International Cooperation. This approach, based on three-year planning, is intended to be fully consistent with the actual limitations of the JINR budget. This new initiative of the Directorate was supported by the PAC.

The PAC noted with interest the information, presented by A. Olchevski, on plans for JINR's participation in the physics studies at the Facility for Antiproton and Ion Research (FAIR, Darmstadt) and the importance of this work for JINR's future studies in the field of particle physics. The PAC proposed concentrating resources on selected aspects of the FAIR experimental programme as opposed to participating broadly in all areas of interest.

The PAC noted with interest the information, presented by G. Shirkov, on plans for JINR's participation in the International Linear Collider project, including technical work that has been accomplished to substantiate the possibility of JINR hosting the ILC in the area of Dubna. The PAC strongly supported the intention of JINR to participate actively in this project and encouraged the JINR team to become centrally involved in ongoing activities focused on plans for the civil construction at a future ILC site.

The PAC considered the proposal for a new project «Preparation of Proposals for JINR's Participation in the Design, Manufacturing and Testing of the Linear Collider Element Prototypes», and recommended its approval for execution with first priority until the end of 2009.

The PAC noted with interest the report by A. Sorin on the plan for a future programme to study the mixed phase of QCD matter at the Nuclotron. The PAC strongly recommended the creation of a fully developed, resource loaded project plan which shows how this programme will be carried out, how it will be financed, and the schedule for its completion. The PAC recommended further that in the future, assuming the project to upgrade the Nuclotron moves forward, there should be an effort to convene the international scientific community which potentially may utilize this new facility to discuss ideas for experiments and detectors.

The PAC noted with interest the information on the preparation of the Nuclotron-M project and proposed that the authors present a full proposal at the next meeting. The PAC strongly recommended the creation of a resource loaded project plan which should be reviewed by an international expert committee, charged with assessing the robustness of the plan to successfully accomplish the planned upgrade of the Nuclotron.

The PAC considered the projects, previously approved for completion in 2006, and recommended continuation of the DIRAC, OKAPI, NIS, NN-GDH, ALPOM, MARUSYA, TUS, LNS, pHe3, MPT and some other activities. Concerning the «Movable Polarized Target (MPT)» project, the PAC noted with regret, again, that the work on several projects approved by

the PAC had been significantly slowed due to the absence of the MPT. The very high priority of this activity has been emphasized several times; however, the MPT is still not available. The PAC strongly recommended once again making the MPT available for use in the experiments within a short time.

The PAC took note of the written report on JINR's participation in the HARP/PS214 project and recommended that the JINR Directorate close this activity.

The PAC noted with interest the report «CNGS and OPERA (JINR's Participation): Status and Perspectives» presented by Yu. Gornushkin.

The PAC endorsed the priorities of the projects and themes for the year 2007, noting that, as part of the ongoing effort to streamline the JINR particle physics programme, the priority and funding of all projects, including those with first priority, may be reviewed as appropriate, even if they had been previously approved for a three-year period.