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 18–19 March.

The Plenipotentiary of the Republic of Belarus, V. Nedilko, was elected Chairman of the session of the Committee of Plenipotentiaries (CP).

The CP took note of the report presented by JINR Director V. Kadyshevsky «Implementation of the Recommendations of the JINR Scientific Council and of the Decisions of the JINR Committee of Plenipotentiaries, JINR's Activities in 2003 and Plans for 2004».

The CP approved the activity of the JINR Directorate on the implementation of the JINR Plan of Research and International Cooperation in 2003, on the realization of collaborative research programmes with the Member States, and on plans for the involvement of new scientific partners. In particular, the CP noted:

— performance of topical theoretical and experimental studies, which have resulted in new significant scientific output enriching world science;
— experiments on the synthesis of new elements 115 and 113; activities for the construction of the ATLAS, CMS and ALICE detectors for CERN's LHC;
— fulfilment of the schedule of operation of the Institute's basic facilities in 2003: the total running time of the facilities was 14 265 hours, which is the best data achieved over the last 12 years on users' requests for experiments at the Institute's reactor and accelerators;
— progress in the development and upgrade of the JINR basic facilities, including the successful acceleration of the iron beam at the Nuclotron, execution of the scheduled work on the construction of the new movable reflector for the IBR-2 reactor, continuation of the assembly of the linear electron accelerator for the IREN facility, as well as ongoing activity within Phase I of the DRIBs projects aimed at two experiments to be carried out in 2004;
— start of the Dubna International Advanced School of Theoretical Physics (project DIAS-TH) and the initiatives of the JINR University Centre for holding joint seminars in research centres of the Institute's Member States, which contributes to promoting JINR's educational and scientific activities within the international scientific community, among young scientists and students.

The CP noted the presentation of the new project «International Internet Magazine for School Students in Natural Sciences». Considering the great importance of involvement of talented young people in the Member States to science, it was recommended to continue the work on this project.

The CP approved the recommendations of the 94th and 95th sessions of the JINR Scientific Council and the JINR Topical Plan of Research and International Cooperation for 2004. The JINR Directorate was commissioned to give funding in 2004 to the priority activities as recommended at the 95th session of the Scientific Council.

The CP approved the proposal of the JINR Directorate concerning the conclusion of a cooperation agreement between the Joint Institute for Nuclear Research and the Department of Science and Technology of the Republic of South Africa.

Based on the report «JINR's Financial Activity in 2003 and Plan for 2004–2005» presented by JINR

Assistant Director for Economic and Financial Issues V. Katrasev, the CP took note of the information on the execution of the JINR budget in 2003: in expenditure — US$ 30 753.0 thousand and in income — US$ 32 837.5 thousand.

The CP approved the JINR budget for 2004 with the total expenditure amounting to US$ 38.063 million, as well as the Member States' contributions and the sums of Member States' debts to be paid in 2004.

The estimate of the JINR budget for 2005 in income and expenditure was set by the CP to be US$ 37.6 million. Also fixed were the provisional sums of the Member States' contributions to the JINR budget and the sums of Member States' debts to be paid in 2005.

The CP resolved to postpone the payments by Member States of the debts that occurred in 2002–2003 for a period after the year 2011, taking into account the results of implementation of «The Programme of Restructuring of Debts and Reforming of the System of Calculation and Payment of Contributions for 2004–2010».

The CP approved the Institute's financial activity in 2003 concerning the implementation of «The Programme of JINR's Scientific Research and Development for 2003–2009» and noted the Directorate's information on the plan for 2004–2005.

Based on the report by JINR Budget and Financial Planning Department Chief A. Ruzaev «On Basic Documents Regulating the Financial Activity of JINR», the CP agreed with the recommendation of the Finance Committee and of the Working Group under the CP Chairman to approve the revised texts of the basic documents regulating JINR's financial activity. The CP opened these basic documents, which include amendments in the Institute's Charter and Financial Protocol, for signature by the Plenipotentiaries. Based on the their powers from the governments of the Member States, the Plenipotentiaries should sign these documents before the next session of the CP in March 2005.

The CP resolved to accept for consideration any additional amendments in the texts of the JINR Charter and Financial Protocol after the signature of these documents by the majority of Plenipotentiaries, in accordance with article 20, item 2 of the Charter, and after their coming into force. Minor editing corrections forwarded to the Directorate can be agreed upon with the Plenipotentiaries by correspondence.

The CP approved the text of the «Financial Regulations of JINR» presented by the Working Group under the CP Chairman and commissioned the Directorate to be guided by it in the financial activity.

Based on the report presented by the Chairman of the Finance Committee, V. Chmel, on the Committee's meeting held on 19–20 February 2004, the CP approved the Protocol of this meeting and the Directorate's report on the execution of the JINR budget in 2002 with expenditure of US$ 26 798.4 thousand, and with the summary account as of 1 January 2002 being US$ 139 420.0 thousand.

The CP asked the Plenipotentiary of the Russian Federation to organize a review of JINR's economic and financial activities for the year 2003 in a volume similar to the previous one. To examine the results of the review, a control commission was set up, consisting of the representatives of Bulgaria, Czech Republic, Russia, and Vietnam.

Based on the information by JINR Director V. Kadyshevsky concerning the election of the JINR Chief Engineer, the CP elected by open vote G. Shirkov as Chief Engineer of JINR until the completion of the term of office of the JINR Director.

Based on the information by the CP Chairman, V. Nedilko, on the organization of a committee for the election of the JINR Director, and after due discussion, the CP resolved to schedule the election of the JINR Director for the next CP meeting in March 2005 and to set up the election committee composed of the representatives of Belarus, Mongolia, Poland, Russia, Slovakia and of the Chairman of the JINR Science and Technology Council. The CP appointed Russia's representative, Academician V. Matveev, as Chairman of the election committee.

The CP commissioned the committee to prepare its proposals and to forward to the Plenipotentiaries detailed information about the candidates and their programmes not later than two months before the next session of the CP, also to work out recommendations concerning establishment of the position of the Scientific Leader of JINR.

SESSIONS OF THE JINR SCIENTIFIC COUNCIL

The 95th session of the JINR Scientific Council, chaired by JINR Director V. Kadyshevsky, took place in Dubna on 15–16 January.

At the session, Academician V. Kadyshevsky presented a report on the implementation of the recommendations of the 93rd and 94th sessions of the JINR Scientific Council. JINR Chief Engineer G. Shirkov reported on the status, operation and development of the JINR basic facilities. The recommendations of the JINR Programme Advisory Committees were reported by P. Spillantini (PAC for Particle Physics), N. Janeva (PAC for Nuclear Physics), and by W. Nawrocik

(PAC for Condensed Matter Physics). Proposals concerning the memberships of the PACs were presented by Vice-Director A. Sissakian.

The election of two Deputy Directors of the Dzhelepov Laboratory of Nuclear Problems took place at the session, and the third vacancy of a DLNP Deputy Director was announced. The election for this position will be held at the 96th session of the Scientific Council.

The Jury's recommendations on the JINR prizes for 2003 were presented by A. Sissakian. The Scientific Council endorsed the JINR Directorate's proposals on the awarding of the title «Honorary Doctor of JINR». The awarding of the 2003 Bruno Pontecorvo Prize took place at the session; the laureate delivered a talk on the subject of his research.

The following scientific reports were presented at the session: «Project and Research Programme of the Cyclotron Complex for the Gumilev University (Astana)» by A. Sissakian and B. Gikal, «Prospects for the Synthesis of Superheavy Elements at JINR» by Yu. Oganessian, and «Electron String Phenomenon: Physics and Applications» by E. Donets.

The Scientific Council took note of the comprehensive report presented by JINR Director V. Kadyshevsky on the implementation of the recommendations taken at the 93rd and 94th sessions of the Scientific Council.

The Scientific Council 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 successfully implemented. It would appreciate more information on the financial constraints hindering their complete implementation.

The Scientific Council took note of the report «Status, Operation and Development of the JINR Basic Facilities» presented by JINR Chief Engineer G. Shirkov.

The Scientific Council noted the steadily increasing running time of the JINR facilities over the last five years. This positive process for the JINR research programme, on the one hand, and the constant growth of the electricity price, on the other hand, lead to the considerable increase of power expenditure at the Institute, which is a difficult task to handle under the conditions of limited budget. The JINR Directorate and the technical services responsible for the operation of the basic facilities were strongly encouraged to study and find possible ways for substantial electricity economy and for improving the efficiency of power consumption. The Scientific Council also noted that the reliable operation of the basic facilities required additional and regular expenses for their technical support and development.

The Scientific Council regretted the continuing delay in the construction of the IREN facility and supported the proposed partnership with the Kurchatov Institute to complete it.

The Scientific Council took note of the reports presented by the JINR Director and the representatives of the PACs, and endorsed «The JINR Topical Plan for Research and International Cooperation in 2004». Taking into account the proposals of the JINR Directorate and the recommendations of the PACs, the Scientific Council endorsed the following priority activities in 2004 on which financial and manpower resources should be focused:

In-House Facilities:

— operation and development of the Nuclotron focused on the further efficiency of the complex and achievement of a wider range of accelerated nuclei for the users, development of the Nuclotron beam extraction system and of external beam lines;

— modernization of the IBR-2 reactor according to the schedule of activities approved by an agreement between JINR and the Russian Ministry for Atomic Energy: final assembly and bench-tests of the new movable reflector MR-3, its assembly at a permanent site near IBR-2 and the start-up of the reactor with the MR-3 in 2004; delivery of the reactor's new fuel elements and organization at JINR of a working area for the assembly of fuel elements into fuel cassettes;

— reconstruction of the U400 accelerator, completion of Phase I of the Dubna Radioactive Ion Beams (DRIBs) project, implementation of work on the realization of Phase II of the project, start of physics experiments with radioactive ion beams.

Facilities under Construction:

— decommissioning of the IBR-30 reactor and construction of the IREN facility according to the revised schedule of October 2003 and dedicated funding with the aim to complete its first stage in 2006;

— further development of JINR's telecommunication links, networking, computing and information infrastructure, including Grid technologies.

Ongoing Research Programmes and Projects:

— studies in modern mathematical physics; theoretical studies in particle physics, nuclear physics, and condensed matter physics, first of all with a view to supporting experimental work in these fields;

— continued participation in frontier experiments aimed at studying the fundamental properties of elementary particles and their interactions, study of rare weak processes aimed at verification of the Standard Model of particle interactions and search for new physics phenomena beyond the Standard Model, precise measurement of direct CP violation, studies of the nucleon structure, as well as thorough investigations of neutrino properties and nature 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 construction of accelerator subsystems for the LHC, as well as development of promising accelerator technologies;

GOVERNING AND ADVISORY BODIES OF THE JOINT INSTITUTE FOR NUCLEAR RESEARCH

COMMITTEE OF PLENIPOTENTIARIES OF THE JINR MEMBER STATES

Armenia	H. A. Vartapetian	Moldova	V. A. Moskalenko
Azerbaijan	M. Kerimov	Mongolia	Ts. Gantsog
Belarus	V. I. Nedilko	Poland	A. Hrynkiewicz
Bulgaria	E. Vapirev	Romania	D. Popescu
Cuba	D. Codorniu	Russia	M. P. Kirpichnikov
Czech Republic	R. Mach	Slovak Republic	S. Dubnička
Georgia	N. S. Amaglobeli	Ukraine	V. S. Stognij
Kazakhstan	K. K. Kadyrzhanov	Uzbekistan	B. S. Yuldashev
D. P. Republic of Korea	Li Je Sen	Vietnam	Nguyen Van Hieu

Finance Committee

One delegate
from each Member State

SCIENTIFIC COUNCIL

Chairman: V. G. Kadyshevsky

Scientific Secretary: V. M. Zhabitsky

N. S. Amaglobeli	Georgia	M. V. Kovalchuk	Russia	G. Piragino	Italy
I. Antoniou	Greece	F. Lehar	France	S. K. Rakhmanov	Belarus
A. Antonov	Bulgaria	A. A. Logunov	Russia	J. Ružička	Slovak Republic
Ts. Baatar	Mongolia	M. Mateev	Bulgaria	V. Sahni	India
A. Budzanowski	Poland	V. A. Matveev	Russia	Š. Šaro	Slovak Republic
M. Budzynski	Poland	G. van Middelkoop	Netherlands	N. M. Shumeiko	Belarus
G. D. Cata	Romania	R. Mir-Kasimov	Azerbaijan	A. N. Sissakian	Russia
Chen Hesheng	China	T. M. Muminov	Uzbekistan	A. N. Skrinsky	Russia
A. Dujsebaev	Kazakhstan	Yu. Musakhanov	Uzbekistan	R. Sosnowski	Poland
D. Ellis	Switzerland	D. L. Nagy	Hungary	P. Spillantini	Italy
A. Hrynkiewicz	Poland	Nguyen Manh Shat	Vietnam	G. Stratan	Romania
Hwan Sok Hwa	D. P. Republic of Korea	Nguyen Van Hieu	Vietnam	A. N. Tavkhelidze	Georgia
J. Janik	Poland	V. N. Okolovich	Kazakhstan	A. Wagner	Germany
V. G. Kantser	Moldova	Yu. A. Osipian	Russia	I. Wilhelm	Czech Republic
N. S. Kazak	Belarus	V. V. Papoyan	Armenia	G. M. Zinoviev	Ukraine
G. Khuunkhenkhuu	Mongolia	B. Peyaud	France		

Programme Advisory Committee for Particle Physics

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

Programme Advisory Committee for Nuclear Physics

Chairperson: N. Rowley (France)
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 V. G. Kadyshevsky

Vice-Director A. N. Sissakian

Vice-Director Ts. Vylov

Chief Scientific Secretary V. M. Zhabitsky

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

Division of Radiation and Radiobiological Research

Leader
E. A. Krasavin

Research in

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

University Centre

Director
S. P. Ivanova

Central Services

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

— continuation of relativistic nuclear interaction studies focused on the search for manifestations of quark and gluon degrees of freedom in nuclei and on properties of nuclear matter at high energies, as well as studies of the spin structure of the lightest nuclei, in-house experiments mainly at the Nuclotron, as well as experiments at accelerators of other centres: CERN (SPS), BNL (RHIC), GSI (SIS), Uppsala University (CELSIUS), RIKEN;
— experiments on the synthesis of superheavy nuclei with $Z = 116$ and 118 using the upgraded Gas-Filled Recoil and VASSILISSA separators, experiments on the chemical isolation and identification of superheavy elements with $Z = 112$ and 114, study of the fusion–fission reactions with ^{48}Ca, ^{58}Fe, ^{64}Ni ions using the CORSET + DEMON facility, study of the structure of light exotic nuclei and of the mechanism of nuclear reactions with radioactive and stable ion beams using the ACCULINNA, COMBAS, MSP-144 and ISTRA set-ups, construction of the MASHA separator;
— research, development and manufacturing of neutron detectors, sample environment systems and data acquisition systems for the IBR-2 spectrometer complex, development of the FLNP local area network;
— investigation of effects induced in biological objects by ionizing radiation with different linear energy transfers, participation in the development of new radiopharmaceuticals for cancer diagnostics and treatment;
— development of the JINR Educational Programme, including special-purpose training of specialists for the Member States; in particular, the new activity «Dubna International Advanced School of Theoretical Physics» and annual summer student practical courses in JINR's fields of research.

As requested by the Scientific Council, the JINR Directorate published the final text of «The Programme of JINR's Scientific Research and Development for 2003–2009» in October 2003. The Scientific Council appreciated the significant amount of work done by the JINR Directorate to prepare this comprehensive document.

The Scientific Council took note of the summaries of two supplements — the «Programme of the Development of the JINR Engineering and Technical Infrastructure» and «Young Staff at JINR», presented in written form at this session. The Scientific Council underlined the importance of these issues for the future of JINR and endorsed the main ideas outlined in the summaries. It asked the JINR Directorate to complete work on these supplements and looked forward to a report on their implementation at the session in January 2005.

The Scientific Council appreciated the booklet of JINR projects and themes prepared for this session and made available in advance in online version.

The Scientific Council took note of and concurred with the recommendations made by the PACs at their November 2003 meetings and reported at this session by Professors P. Spillantini, 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 proposed for the period 2004–2006.

The Scientific Council welcomed the work of the committee to evaluate the scientific programme of the Nuclotron and concurred with the PAC that this activity should be continued.

The Scientific Council urged the PAC to consider how best to study exotic baryons with Nuclotron experiments in a timely manner.

The Scientific Council supported the recommendations of the PAC on the opening of the new theme «Dubna International Advanced School of Theoretical Physics» and of the new project OPERA, on the addendum to the NIS experiment for pentaquark studies, on the continuation of the current activities.

Nuclear Physics Issues. The Scientific Council congratulated the Flerov Laboratory of Nuclear Reactions on the recent success in the synthesis of the new elements with $Z = 113$ and $Z = 115$ in the $^{48}\mathrm{Ca} + {}^{243}\mathrm{Am}$ reaction. The very successful programme on the synthesis and investigations of superheavy elements should be continued with first priority.

The Scientific Council expressed its grave concerns about the underfinancing of DRIBs and IREN, which it has long considered to be flagship projects for JINR. The Scientific Council believes that the future health and competitiveness of the Institute depend on the timely provision of home-based facilities.

To maintain the attractiveness of the FLNR basic set-ups in the future, it is necessary to realize the DRIBs project in its entirety without further delay and to start experiments at DRIBs Phase I during 2004. The upgrade and modernization of the U400 accelerator should be completed with particular urgency.

Gamma spectroscopy of the heaviest elements will give a deeper insight into the structure of these complex nuclei, and the proposed Dubna–IN2P3 collaboration on this topic is welcomed.

The Scientific Council noted that proposed experiments of the Mu-CATALYSIS project may yield important new results, which can be obtained only at Dubna using the existing facility and new target technology from the All-Russian Scientific Research Institute of Experimental Physics (Sarov).

Condensed Matter Physics Issues. The Scientific Council reiterated the high priority of the modernization of the IBR-2 reactor. The Scientific Council noted that in 2003 the financial support of Minatom for the IBR-2 modernization was contributed timely and in full volume and that JINR also funded this activity in the volume of 114% (285 k$) of the planned amount for 2003, partially compensated the debt accumulated during 2000–2002.

The Scientific Council appreciated the successful commissioning of the MR-3 movable reflector, which

is vital for the planned start-up of the IBR-2 reactor by July 2004.

The Scientific Council also appreciated the completion of the manufacture by the Mayak plant of the fuel elements for the future modernized reactor IBR-2M.

Common Issues. The Scientific Council highly appreciated the success of the JINR educational programme, considered it to be fruitful and extremely useful for the Institute and Member States, and endorsed PAC recommendations on the extension of this activity with first priority for another five years. It also supported the University Centre's initiative to organize regularly summer physics practical courses for students from Member States. The cooperation of the JINR Laboratories is necessary to attain this aim.

The Scientific Council noted that two new departments — of theoretical physics and of nuclear physics, headed by JINR leading scientists, had recently been opened at the Dubna University. This positive development will help to attract more young people to science, including to research work at JINR.

The Scientific Council welcomed the prospect of associate membership of India at JINR and the possibility of increased collaboration with South Africa.

Upon proposal by the JINR Directorate, the Scientific Council appointed P. Mikula (NPI, Řež, the Czech Republic) and G. Pepy (Saclay, France) as new members of the PAC for Condensed Matter.

The Scientific Council elected by ballot A. Kovalik and E. Syresin as Deputy Directors of the Dzhelepov Laboratory of Nuclear Physics until the completion of the term of office of the DLNP Director.

According to the JINR Regulations, the Scientific Council announced one vacancy of a DLNP Deputy Director.

The Scientific Council approved the Jury's recommendations on the JINR prizes for 2003 and congratulated Professor Y. Totsuka (KEK, Tsukuba, Japan) on being awarded the 2003 Bruno Pontecorvo Prize, in recognition of his outstanding contribution to the discovery of muon neutrino oscillations.

The Scientific Council congratulated Professors R. Cashmore, W. Scheid, A. Sinaev, and B. Yuldashev on being awarded the title «Honorary Doctor of JINR», in recognition of their outstanding contributions to the advancement of science and the education of young scientists.

The Scientific Council deeply regretted the sad loss of Professor L. Masperi, Director of the Latin-American Centre of Physics (CLAF, Rio de Janeiro, Brazil) and member of the JINR Scientific Council, who had made an outstanding contribution to the establishment and development of the JINR–CLAF scientific relations.

The 96th session of the JINR Scientific Council, chaired by JINR Director V. Kadyshevsky, took place in Dubna on 3–4 June.

At the session, Academician V. Kadyshevsky informed the Council about the decisions taken by the JINR Committee of Plenipotentiaries at its meeting held on 18–19 March 2004. The recommendations of the JINR Programme Advisory Committees were reported by P. Spillantini (PAC for Particle Physics), N. Rowley (PAC for Nuclear Physics), and by W. Nawrocik (PAC for Condensed Matter Physics). Proposals concerning the memberships of the PACs were presented by Vice-Director A. Sissakian.

The session included the election of a Deputy Director of the Dzhelepov Laboratory of Nuclear Problems.

The following scientific reports were presented: «20 Years of Exploitation of the IBR-2 Reactor» by V. Ananiev, «Neutron Scattering in Condensed Matter Research at the IBR-2 Reactor» by A. Balagurov, «Future Development of DESY» by A. Wagner, «Physics Results of the NA48 Experiments and the Dubna Group's Role in Their Realization» by V. Kekelidze, «From Resonances and Gluons to the LHC and the Origin of Mass» by R. Cashmore, «Integrable Models of Nonequilibrium Processes» by V. Priezzhev, «Search and Study of Narrow Exotic Baryons at the Nuclotron» by E. Strokovsky.

The Scientific Council endorsed the JINR Directorate's proposals on the awarding of the title «Honorary Doctor of JINR» to a group of outstanding scientists. Diplomas to the winners of JINR Prizes for 2003 were awarded.

The Scientific Council noted the information presented by JINR Director V. Kadyshevsky concerning the decisions taken by the JINR Committee of Plenipotentiaries (CP) at its March 2004 session, in particular:

— the approval of the JINR Topical Plan of Research and International Cooperation for 2004 based on the recommendations of the Scientific Council and the PACs;
— the appointment of G. Shirkov as Chief Engineer of JINR until the completion of the term of office of the present Director;
— the formation of a committee for the election of the JINR Director for a new term of office, which is scheduled for the next CP session in March 2005, in accordance with the JINR Charter.

The Scientific Council appreciated the stable operation of the JINR basic facilities and the tendency of increasing running times of the facilities in the last few years.

The Scientific Council was pleased to note that the financing of the IBR-2 modernization, including the installation of the movable reflector, was being implemented in accordance with an agreement between JINR and the Russian Federal Agency for Atomic Energy, and with the JINR internal plan of funding.

The Scientific Council appreciated the long-standing and close cooperation between JINR and the European Organization for Nuclear Research (CERN).

Various aspects of this collaboration were discussed during the visit to Dubna, in April 2004, of the new Director-General of CERN, Dr R. Aymar, together with some other members of the CERN management. The

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

The JINR Scientific Council congratulated CERN on its 50th anniversary, celebrated in 2004, and wished this Laboratory much success in the future.

The Scientific Council took note of the written recommendations made by the PACs at their April 2004 meetings.

Particle Physics Issues. The Scientific Council valued highly the important achievement of the VBLHE staff in realizing the Nuclotron beam extraction with a spill duration of up to 10 seconds. An energy increase of the Nuclotron nuclear beams up to 6 GeV/nucleon was considered to be a task of primary importance in the development of the Nuclotron in 2004.

JINR succeeded in the on-time fulfilment of all its obligations in the external experiments in which it participates. The Scientific Council urged the JINR physicists in these projects to be deeply involved in the analysis of the collected data and in the development of relevant theoretical models and descriptions. The Scientific Council wished to learn about the physics subjects that were going to be studied by the JINR groups and how this analysis work would be organized.

The Scientific Council supported the PAC's recommendation to search for the pentaquark with high priority. At present the NIS experimental set-up is being brought to completion. The search could be carried out with the present status of the Nuclotron. The Scientific Council also supported the recommendations on two new projects («F-Cluster» and «Med-Nuclotron of JINR») as outlined in the PAC report.

Nuclear Physics Issues. To maintain the attractiveness of the FLNR basic facilities in the future, the DRIBs project should be realized as quickly as possible, including its Phase II. With this aim in view, the upgrade and modernization of the U400 accelerator should be treated with particular urgency.

The Directorates of JINR and FLNP were urged to search for ways to accelerate the IREN project, i.e., seeking external financing if this is the only possibility to ensure its timely implementation. If IREN cannot be completed by 2006, a very important opportunity will be lost.

The Scientific Council supported the SAD project, which was of considerable interest to JINR Member States, and encouraged closer collaboration and information exchange between SAD and other international transmutation projects. The Scientific Council also supported the PAC's recommendations to continue the DUBTO and LESI experiments, which were producing interesting new results.

Condensed Matter Physics Issues. The Scientific Council put a high value on the successful completion by the FLNP staff of important stages of the IBR-2 modernization programme: the manufacturing and testing of the new movable reflector and the delivery of new fuel elements.

The Scientific Council asked the JINR Directorate to take all necessary measures to guarantee the completion of the IBR-2 modernization by 2010. There should be a team of experienced and skilled people able to operate the reactor during the next 20 years.

The Scientific Council appreciated the ongoing instrumentation developments at FLNP which make IBR-2 competitive in the use of neutron scattering methods in condensed matter investigation.

Common Issues. The Scientific Council noted the scientific and social importance of the studies in the field of cancer treatment at the Phasotron and at the proposed new beamline at the Nuclotron. It encouraged the JINR Directorate to provide these activities with appropriate funding. A coordination of the various activities in medicine and biology at JINR was also recommended.

The Scientific Council expressed the wish for fixed terms of three years for each PAC member with the possibility of extension for one more term, so as to ensure a regular rotation of the membership. The Scientific Council expected that all the PAC Chairpersons ought normally to be present during its sessions.

The Scientific Council took note of the end-of-terms of the PAC Chairpersons and decided to re-appoint N. Rowley as Chairperson of the PAC for Nuclear Physics for a term of three years.

The Scientific Council took note of the Regulation for the composition and structure of the PACs, as given in the Resolution of the 84th session of the JINR Scientific Council (June 1998). This Regulation foresees three-year terms for the members and a replacement of one third of the members each time. The Scientific Council observed that this Regulation had been generally applied for the PACs for Nuclear Physics and Condensed Matter Physics. However, this was not a case for the PAC for Particle Physics. The Scientific Council asked the Directorate to change this situation as soon as possible and expected a proposal for the next session.

The Scientific Council expressed a wish to hear, at its next session, the physics topics that will be investigated in the external experiments at the LHC and at the Tevatron.

The Scientific Council elected by ballot R. Leitner as Deputy Director of the Dzhelepov Laboratory of Nuclear Problems (DLNP) until the completion of the term of office of the DLNP Director.

The Scientific Council congratulated Professors A. Budzanowski, J. H. Hamilton, M. Kirpichnikov, W. Sandhas, E. Steinnes, and I. Zvára on being awarded the title «Honorary Doctor of JINR», in recognition of their outstanding contributions to the advancement of science and the education of young scientists.

The Scientific Council deeply regretted the sad loss of Academician N. Amaglobeli, member of the JINR Scientific Council and Plenipotentiary of Georgia to JINR, who made outstanding contributions to the development of the scientific coop-

eration between JINR and Georgia's research centres.

The Scientific Council also deeply regretted the sad loss of Professor V. Papoyan, member of the JINR Scientific Council, who made outstanding contributions to the development of the scientific cooperation between JINR and Armenia's research centres.

MEETING OF THE JINR FINANCE COMMITTEE

A regular meeting of the JINR Finance Committee was held in Dubna on 19–20 February. It was chaired by V. Chmel, a representative of the Republic of Belarus.

At the meeting, JINR Director V. Kadyshevsky reported on the implementation of the recommendations of the JINR Scientific Council and of the decisions of the JINR Committee of Plenipotentiaries (CP), on JINR's activities in 2003 and plans for 2004.

The Finance Committee approved the activity of the JINR Directorate on the implementation of the JINR Plan of Research and International Cooperation in 2003, on the realization of collaborative research programmes with the Member States and on plans for the involvement of new scientific partners. It also noted the achievements of JINR staff in the implementation of the JINR scientific programme, in particular the experiments on the synthesis of elements 115 and 113, the fulfilment of the schedule of the operation of the Institutes' basic facilities in 2003, during which the best data was achieved over the last 12 years on users' requests for experiments at the Institute's reactor and accelerators.

Based on the information on the work of the Control Commission, presented by V. Drozhenko, the Finance Committee approved the Directorate's report for 2002 on the execution of the JINR budget in expenditure amounting to US$ 26 798.4 thousand, with the summary account as of 1 January 2003 being US$ 139 420.0 thousand.

The Finance Committee took note of the report «JINR's Financial Activity in 2003 and Plan for 2004–2005», presented by V. Katrasev, and recommended that the CP approve the JINR budget for 2004 with the total expenditure amounting to US$ 38.063 million.

Based on the report by A. Ruzaev «On Basic Documents Regulating the Financial Activity of JINR», the Finance Committee recommended that the CP agree with the recommendation of the Working Group under the CP Chairman to approve the revised texts of the basic documents regulating JINR's financial activity. The Finance Committee proposed that these basic documents, which include amendments in the Institute's Charter and Financial Protocol, be opened for signature at the March 2004 session of the CP. It also asked the Plenipotentiaries, based on the their powers from the governments of the Member States, to sign the new versions of the Charter and of the Financial Protocol before the March 2005 session of the CP.

The Finance Committee endorsed the text of the «Financial Regulations of JINR» presented by the Working Group under the CP Chairman and commissioned the Directorate, after the approval of this document at the CP session, to be guided by it in the financial activity.

MEETINGS OF THE JINR PROGRAMME ADVISORY COMMITTEES

The 20th meeting of the Programme Advisory Committee for Nuclear Physics was held on 1–2 April. It was chaired by Professor N. Rowley.

The PAC was informed on the implementation of the recommendations taken at the previous meeting, on the resolution of the 95th session of the JINR Scientific Council (January 2004) and on the decisions of the Committee of Plenipotentiaries (March 2004 meeting).

The PAC took note of the information about the financial situation of experiments and projects in the field of nuclear physics at JINR during the last five years, the status of the DRIBs project, the latest results of the DUBTO and LESI projects, and about the status of the SAD project. The PAC considered reports on two themes previously approved for completion in 2004 and a letter of intent concerning the planned new theme of LIT «Mathematical Support of Experimental and Theoretical Studies Conducted at JINR». Also two scientific reports were presented at this session. The PAC made the following recommendations on the considered questions:

Heavy-Ion Physics. The PAC listened to the presentation on the recent developments in the DRIBs project and appreciated the information on first experiments to be started in its Phase I. To maintain the attractiveness of the FLNR basic facilities in the future,

the DRIBs project should be realized as quickly as possible, involving also Phase II. With this aim in view, the upgrade and modernization of the U400 accelerator should be treated with particular urgency.

Low- and Intermediate-Energy Physics. The PAC heard a report on the first results with the DUBTO streamer chamber detector. In pion interactions with ^{4}He nuclei, the production of secondary nucleons and nuclear fragments was observed and branching ratios of specific reaction channels reported, with charged-particle energies as low as 1 MeV. The PAC recommended continuation of the DUBTO experiment.

The PAC was informed about the latest results of the LESI project on the measurement of fusion cross sections of very light nuclei. The S factors obtained are of great interest in astrophysics and for the solar model, and are the first measurements in the energy range below 10 keV. They exploit a novel technique using very high intensity plasma pulses which may also give new information on the role of electron screening. The PAC recommended continued support of this work.

The PAC welcomed the start-up of the project «Subcritical Assembly at Dubna» (project SAD), targeted on creating a facility for addressing important problems of modern nuclear energy production and waste transmutation. The PAC supported the SAD project which is of considerable interest to JINR Member States and encouraged closer collaboration and information exchange between SAD and other international transmutation projects.

Nuclear Physics with Neutrons. The PAC heard a report on the theme «Construction of the IREN Facility». It was recognized that during the last four years essential progress had been achieved in spite of permanent underfinancing. However, it was again noticed with concern that the problem of continuing delay in the implementation of the IREN project had not yet been solved. As new international neutron sources become available and compete with IREN, this might finally have an influence on its scientific impact if the delays accumulate further. The Directorates of JINR and FLNP are asked to search for ways to accelerate the project, including seeking external financing if this is the only possibility to ensure its timely implementation.

The PAC was impressed by the presentation of the results obtained by FLNP on the theme «Nuclear Physics with Neutrons — Fundamental and Applied Investigations». Having recognized the leadership of FLNP in this activity, the PAC supported continuation of this first-priority theme for the years 2005–2007. An appropriate recommendation will be made at the next session of the PAC after presentation of a detailed scientific programme.

Information Technologies. The PAC heard with interest a letter of intent concerning the planned new theme «Mathematical Support of Experimental and Theoretical Studies Conducted at JINR». While it appreciated the difficulty in assessing a project which is relevant to more than one PAC, it recommended that the future presentation of this project be concentrated on nuclear physics aspects.

Scientific Reports. The PAC heard with interest two scientific reports: «Microscopic Approach for the Nucleus–Nucleus Potentials and Cross Sections at Intermediate Energies» by V. Lukyanov and «Anomaly Observed in the Radiative Pion Decay Contradicting the Standard Model» by D. Mzhavia.

The 21st meeting of the Programme Advisory Committee for Particle Physics was held on 5–6 April. It was chaired by Professor T. Hallman.

The PAC for Particle Physics took note of the information presented by JINR Vice-Director A. Sissakian on the Resolution of the 95th session of the JINR Scientific Council (January 2004) and on the decisions of the JINR Committee of Plenipotentiaries (March 2004 meeting).

The PAC noted the report by JINR Chief Engineer G. Shirkov on the status of the JINR basic facilities and appreciated their stable operation in 2003.

Among other issues considered at the session were reports on JINR's participation in the preparation of LHC experiments (CERN). The PAC welcomed JINR's large-scale participation in the construction of the CMS detector and in the development of the long-term research programme after LHC commissioning. The PAC congratulated the CMS team on the timely completion of the installation of the two Endcap Hadron Calorimeters, including mechanics and scintillation optics, and on the start of the assembly of the readout electronics and preparation for tests and commissioning of the calorimeters at CERN.

The PAC noted the completion of the transportation of the yoke of the large dipole magnet for the ALICE muon spectrometer and looks forward to a presentation of a scientific programme of the JINR ALICE group.

The PAC was pleased to note the successful work for the ATLAS experiment and the timely fulfilment of JINR's obligations. Completion of the construction of the ATLAS detector and preparation for data analysis should be regarded as a high-priority task of JINR. It was noted that the focus of JINR's participation in ATLAS was changing toward playing a leading role in the ATLAS scientific programme.

The PAC took note of the report on JINR's participation in the COMPASS experiment (CERN) and noted the leading role being played by the JINR team. It recommended that the LPP and JINR Directorates allocate the necessary resources to allow the JINR team to participate in a data-taking run in 2004 and data processing at the LPP computer cluster.

The PAC took note of the report on JINR's participation in the STAR experiment (BNL) and noted the fundamental contribution of LPP physicists to the construction, commissioning, software development and data taking for the shower maximum detector, preshower detector, and tower subsystems of the STAR barrel electromagnetic calorimeter that ensured achieve-

ment of the planned performance for hadron rejection. Also, the successful fulfilment of all the obligations of VBLHE related to the development and production of the components and systems of the STAR endcap electromagnetic calorimeter at Dubna opens important opportunities for investigations in the field of spin physics.

The PAC took note of the reports on JINR's participation in the CDF and D0 experiments (Fermilab). It noted the high quality of studies within the framework of these experiments launched at the upgraded Tevatron, as well as JINR's significant material and intellectual contributions to the preparation of these experiments. The PAC recommended the further participation of JINR in the analysis of the data obtained at these facilities aimed at continued precision tests of the Standard Model and the search for new physics.

The PAC took note of the report on the theme «Development of the Nuclotron Accelerator Complex» for the period from November 2003 to April 2004. The PAC approved the activity of the VBLHE Directorate aimed at increasing the intensity of the Nuclotron's polarized deuteron beam. At the same time the PAC expressed deep concern that the level of support for ongoing experiments in the Nuclotron programme was not sufficient to effectively utilize the investment being made in operating and upgrading the Nuclotron facility. It recommended that the JINR Directorate consider means to optimize usage of the Nuclotron, including increased resources for ongoing experiments.

As a general remark, the PAC emphasized that JINR had succeeded in timely fulfilment of all its obligations in the international experiments in which it participates. The PAC encouraged the JINR physicists in these projects to be deeply involved in the analysis of the collected data and in the development of relevant theoretical models, and recommended that the JINR Directorate supply the resources needed for this activity.

The PAC considered two proposals for new projects: «The JINR Distributed Computer Infrastructure Cluster for Running Particle Physics Experiments» and «Med-Nuclotron of JINR on the Extended Use of the JINR Facilities for Ion Oncology Therapy» and recommended approval of these projects for execution.

The 20th meeting of the Programme Advisory Committee for Condensed Matter Physics was held on 19–20 April. It was chaired by Professor W. Nawrocik.

Chaiperson W. Nawrocik presented the implementation of the recommendations of the previous PAC meeting. He also announced the appointment of two new members of the PAC: P. Mikula (Czech Republic) and G. Pepy (France). JINR Chief Scientific Secretary V. Zhabitsky presented information on the Resolution of the 95th session of the JINR Scientific Council and on the decisions of the JINR Committee of Plenipotentiaries.

In response to its previous recommendation, the PAC was informed by A. Ruzaev, Head of the JINR Budget and Financial Planning Department, about the planned parameters of funding the scientific programme «Condensed Matter Physics», also about the actual expenditure during 2002–2003 and plans for 2004. The PAC expressed concern that the condensed matter research had not been fully funded in accordance with the 16% share of the JINR budget approved following the recommendation of the JINR Scientific Council. As a result, some of the important activities did not get proper financial support.

The IBR-2 Reactor. The PAC members visited the IBR-2 reactor to get acquainted with the ongoing assembly of the new movable reflector MR-3. The PAC received very positive information that the financing of the IBR-2 modernization in 2003 was realized in accordance with the obligations taken by the JINR Directorate. This allowed recovery of the debt created during previous years. The PAC expected that the financial plan for the IBR-2 modernization for the year 2004 would be completely fulfilled. The PAC congratulated the FLNP staff on the successful completion of the important stage of the IBR-2 modernization programme: the manufacturing and testing of the new movable reflector. The PAC shared the concern expressed in the report by FLNP Chief Engineer V. Ananiev about the average age of the staff operating IBR-2.

The PAC asked the JINR Directorate to take all necessary measures to guarantee that, in view of envisaged completion of the IBR-2 modernization in 2010, there should be a team which will be able to operate the reactor during the next 20 years. The PAC approved the general lines for the user policy at IBR-2 presented by FLNP Deputy Director N. Popa.

Instrumentation. The PAC discussed the instrumentation developments proposed within the theme «Neutron Investigations of the Structure and Dynamics of Condensed Matter»: information about the further development of the REMUR and a proposal for the new neutron spectrometer DN-6. The PAC considered favourably these proposals, intending to make final comments at the next meeting.

Scientific Reports. The PAC heard with interest the reports «Cluster States of Fullerenes in Solutions» by M. Avdeev and «Molecular Dynamics Simulations of the Influence of Disease-Related Amino Acid Mutations in Biophysical Structures» by Kh. Kholmurodov.

New Activities. The PAC took note of the status report on the Nuclotron medical beam line presented by J. Ružička. It recommended that the JINR Directorate coordinate the various activities in medicine and biology at JINR.

The PAC took note of the letter of intent for the new theme «Mathematical Support of the Experimental and Theoretical Studies Conducted by JINR» presented by G. Adam.

The 22nd meeting of the Programme Advisory Committee for Particle Physics was held on 9–10

November. It was chaired by Professor T. Hallman.

The PAC for Particle Physics took note of the information presented by JINR Vice-Director A. Sissakian on the preparation of the JINR Scientific Programme on Particle Physics for the years 2005–2007, as well as of the reports presented by A. Malakhov, Director of the Veksler and Baldin Laboratory of High Energies, O. Teryaev, Head of Sector of the Bogoliubov Laboratory of Theoretical Physics, V. Kekelidze, Director of the Laboratory of Particle Physics, A. Olchevski, Director of the Dzhelepov Laboratory of Nuclear Problems, and by V. Ivanov, Director of the Laboratory of Information Technologies, concerning the main lines of this Programme.

The PAC took note of the Resolution of the 96th session of the JINR Scientific Council (3–4 June 2004), in particular the wish of the Council that the PACs should set scientific priorities in light of the global financial situation at JINR. The PAC intends to review the Scientific Programme on Particle Physics with a view to reducing projects of the lowest scientific impact, including some first-priority activities. The PAC recommended that first-priority status be set for research activities for a one-year period only, pending the results of this review.

The PAC reviewed the proposals of new projects «Lifetime Measurement of $\pi^+\pi^-$ and $\pi^\pm K^\mp$ Atoms to Test Low-Energy QCD» and «Search and Study of Eta-Mesonic Nuclei in pA Reactions at the Nuclotron» and recommended their approval for execution with first priority until the end of 2005. The PAC also recommended approval of the opening of the new theme «Mathematical Support of Experimental and Theoretical Studies Conducted by JINR».

The PAC considered reports and gave recommendations on some ongoing experiments. In particular, it again strongly recommended to make the movable polarized target available for the experiments as soon as possible and requested the Directorate to ensure adequate resources for realization of this project.

The PAC noted that the significance of the CLIC project had grown considerably in the collaborating scientific centres due to the fact that the capability of the CLIC facility at JINR is unique and to the fact that this activity is strongly supported by CERN as a high-priority technology development for possible next-generation accelerator centres with multi-TeV capability. The PAC recommended approval of this project up to 2007, with first priority until the end of 2005.

The PAC put a high value on the physics results obtained in the NA49 and PHENIX experiments and recommended continuation of JINR's participation in these activities.

The PAC considered reports on some activities previously approved for completion in 2004 and gave its recommendations. The PAC appreciated the goals of the DIRAC project, the leading role played in it by JINR physicists, and the important work already accomplished on data taking and analysis. However, the PAC pointed to the absence thus far of published scientific results from this research and recommended its continuation until the end of 2005 to realize its full completion, including published final results on the lifetime of $\pi^+\pi^-$ atoms.

The PAC took note of the concluding report on the SPHERE project. The PAC noted the large amount of work carried out and the important world-class scientific results obtained in this experiment. Taking into account the opinion of the VBLHE scientific council and Directorate, the PAC recommended closing this project and supported VBLHE's suggestion to utilize the equipment of SPHERE for the needs of other ongoing or planned experiments.

The PAC took note of several written reports on ongoing experiments, in particular, the projects GIBS, F-CLUSTER, KAPPA, ALPOM, participation in the HARP project and in the research programme at GSI (Germany), and recommended their continuation.

Having confirmed its recommendation on the status of first priority of several projects and themes, the PAC again stressed the necessity of concentrating financial and human resources on the most important directions of the research and encouraged the JINR Directorate and the scientific councils of the Laboratories to make steps towards reducing the number of first-priority projects. The PAC plans to reconsider the priorities of the projects and themes for 2006–2008 in one year.

The PAC thanked P. Zarubin for the interesting report «Clustering Pattern of Light Nuclei in Peripheral Dissociation above 1 $A \cdot$ GeV» (BECQUEREL collaboration) presented at this meeting.

The 21st meeting of the Programme Advisory Committee for Condensed Matter Physics was held on 15–16 November. It was chaired by Professor W. Nawrocik.

Professor W. Nawrocik presented the implementation of the recommendations of the previous PAC meeting. JINR Chief Scientific Secretary V. Zhabitsky presented information on the Resolution of the 96th session of the JINR Scientific Council (June 2004). JINR Chief Engineer G. Shirkov informed the PAC about the status of the operation and development of the JINR basic facilities.

The PAC noted the recommendation of the Scientific Council that the PACs should determine the scientific priorities of projects in light of the global financial situation at JINR. The PAC intends to review the list of projects, related to this Committee, and their priorities. It recommended that first-priority status be set for research activities for one-year period only, pending the results of the review.

The PAC members appreciated the visit to the JINR Hadron Therapy Centre and the explanations given by G. Mitsyn. The PAC emphasized the medical, scientific and social importance of the studies and practical work in the field of cancer treatment at the Phasotron.

IBR-2 Reactor. The PAC was informed by FLNP Chief Engineer V. Ananiev about the status of the modernization of the IBR-2 reactor and its work after the replacement of the movable reflector. The PAC congratulated the staff of the Frank Laboratory of Neutron Physics on starting the scheduled work for physics experiments at the reactor's peak power of 1.5 MW. The Committee appreciated the support of the IBR-2 modernization already given by the JINR Directorate and hoped that the financial plan of the modernization for the years 2004 and 2005 would be fulfilled. The PAC also expressed a wish that the Directorate would take all necessary measures to guarantee the completion of the IBR-2 modernization by 2010 and the availability of a team of experienced and skilled people able to operate the reactor during the next 20 years. The PAC reiterated that the upgrading of the IBR-2 reactor is the top priority task for FLNP's activities in condensed matter physics and life sciences.

The PAC was informed by E. Shabalin about the status of the complex of neutron moderators for the future modernized reactor IBR-2M. The PAC supported the R&D programme for this complex and encouraged a work group of instrument and moderator experts to ensure the optimization of neutron extractions from the moderator system to the given instrument which should be realized during the IBR-2 shut-down period.

FLNP Deputy Director N. Popa presented the implementation of the IBR-2 user policy. The PAC regarded as satisfactory the realization of the first steps of the new programme for the reactor's users. The PAC recommended that the FLNP Directorate do their utmost to attract new users. It also recommended an alteration of the application form for an experiment to help the experts to make a proper selection of the experiments to be performed.

Instrumentation. Yu. Nikitenko presented proposals for the project of the spin-echo small-angle neutron scattering spectrometer. The PAC welcomed the new direction related to spin-echo resonance spectrometers, and encouraged the author to propose a few variants connected with users' interest.

Neutron Activation Analysis Studies at FLNP. The PAC was informed by M. Frontasyeva about the status of neutron activation analysis studies. It noted the growing interest of JINR Member- and non-Member States in applied research carried out at the IBR-2 reactor in the fields of environmental and biological investigations, as well as their international recognition and role in training young specialists who work at the interfaces of different life sciences.

Plans to Reorganize DRRR. The PAC was informed by E. Krasavin, Leader of DRRR about plans to reorganize this Division into a Laboratory of Radiation Biology (LRB). He also presented the proposed structure of LRB and the scientific topics to be addressed. The PAC looks forward to the successful continuation of the radiobiological studies at the JINR basic facilities.

Scientific Presentations. The PAC appreciated the comprehensive presentation of the activity and future scientific programme of the Institut Laue-Langevin (ILL) made by C. Carlile, and thanked the speaker.

The PAC also noted with interest the scientific reports: «Ground State of $MgTi_2O_4$ Spinel Oxide» (presented by N. Perkins), «Mathematical Modeling of the Chromatin Structure» (by S. Andreev), «Calculations by the Method of Molecular Dynamics of Biological Objects» (by Kh. Kholmurodov), and «Small-Angle Neutron Scattering Studies of Biological Objects» (by P. Balgavý). The scientific presentations were considered by the PAC to be of the highest, internationally competitive standard.

New Theme. The PAC took note of the proposal for the new theme «Mathematical Support of Experimental and Theoretical Studies Conducted by JINR», presented by LIT Deputy Director G. Adam, and recommended opening this theme until the end of 2007, with first priority in 2005. The PAC remarked that development of mathematical methods within this project was timely and very important for supporting theoretical investigations in the field of condensed matter physics.

Information on Workshops. The PAC took note of the information on the results of the following meetings: the Joint Workshop on Collaboration between JINR and the Hungarian Academy of Sciences (6–7 September 2004, Budapest) and the Germany–JINR user meeting «Condensed Matter Physics with Neutrons at the IBR-2 Pulsed Reactor» (12–16 June 2004, Dubna), both presented by M. Avdeev, and the international workshop «Molecular Simulation Studies in Material and Biological Sciences» (9–10 September 2004, Dubna), presented by Kh. Kholmurodov.

JINR Educational Programme. The PAC took note of the information, presented by UC Director S. Ivanova, about the summer physics practical courses held at JINR from 29 June to 29 July 2004. The PAC noted the success of these courses, organized on the initiative of the University Centre, and welcomed their continuation in future for attracting young people for scientific work at JINR.

The 21st meeting of the Programme Advisory Committee for Nuclear Physics was held on 18–19 November. It was chaired by Professor N. Rowley.

The PAC was informed on the implementation of the recommendations taken at the previous meeting and on the resolution of the 96th session of the JINR Scientific Council (June 2004).

The PAC took note of the reports about the results of experiments on the chemical identification of the element Db (105) as decay product of element 115, about the first results of gamma-spectroscopy experiments with heavy nuclei, about the status and latest results of the ANCOR and ANKE COSY experiments, and about the progress at the LEPTA ring. The PAC considered two themes previously approved for completion in 2004 at FLNP and a proposal for opening a

new theme at LIT. Also, three scientific reports were presented at the meeting.

The PAC made a general recommendation for prioritization of research activities: taking into account the financial situation at JINR, the Committee concurred with the Institute Directorate that first-priority status should be set for research activities for one year only, pending a future review of the whole of the Institute activities.

The following recommendations were made on the considered questions:

Heavy-Ion Physics. The PAC noted the chemical identification of dubnium as the end product of the decay chain of element 115, produced in the reaction ^{48}Ca + ^{243}Am, as a major achievement which represents an important milestone in superheavy-element research. The PAC recommended continuation with first priority of the physical and chemical studies of superheavy elements, and the planned mass identification using the MASHA mass separator.

The PAC strongly encouraged further developments in gamma spectroscopy at the Flerov Laboratory, noting the successful first series of on-line gamma-ray spectroscopy measurements in the decay of nobelium and lawrencium isotopes. It recommended allocation of one month of beam time for these experiments in 2005.

Upgrade of the U400 Accelerator Complex. The PAC pointed out that the preparatory work for the upgrade of the U400 accelerator should be completed in 2005, which is essential for the challenging research programme of FLNR and for maintaining its leadership in the field.

Low- and Intermediate-Energy Physics. The PAC noted with interest the progress of the ANCOR project and the latest results obtained in nucleus–neutrino angular correlation measurements of beta decay and electron and muon capture by various atomic nuclei. The PAC heard an interesting progress report with first results on the $p + d \to (pp) + n$ reaction in the energy range 0.5–2.0 GeV observed at COSY with the ANKE spectrometer, in complete kinematics and with polarization reconstruction of the events. The PAC recommended continuation of both projects, ANCOR and ANKE COSY, and their further support with high priority under the JINR programme of low- and intermediate-energy physics.

The PAC heard with interest a report on the latest progress of the LEPTA ring with successful first circulation of an electron beam and the idea of the first experiment on LEPTA, aimed at a high-precision lifetime measurement of parapositronium, named PALM. The PAC noted that the PALM experiment presents a challenge and must be elaborated, including a detailed discussion of the systematics, as a full technical proposal to be presented at a future PAC meeting.

Nuclear Physics with Neutrons. It was noted at the meeting that, despite the PAC's continuing support for IREN and the progress already achieved, the implementation of this project is slow and unsatisfactory. Taking into account the current status of the project, including the task of dismantling IBR-30, the PAC proposed to extend the theme «Construction of the IREN Facility (IREN Project)» for one year only, with first priority. The Committee urges the Laboratory and Institute managements to present within this period the solid new plan of investment, already requested at the last PAC meeting and reiterated by the Scientific Council.

The PAC heard with great interest the proposed scientific programme of the theme «Nuclear Physics with Neutrons — Fundamental and Applied Investigations» for the years 2005–2007 at FLNP. The PAC was impressed by the presentation of the rich variety of outstanding experiments performed by the Laboratory's scientists at the IBR-2 beamlines, the Van de Graaff accelerator at FLNP and neutron facilities at external laboratories. The PAC strongly recommended continuation of this theme during 2005–2007, with first priority in 2005.

Information Technologies. The PAC took note of the closing of the first-priority theme «Computer Physics for Theoretical and Experimental Studies».

The PAC heard a proposal for opening the new theme «Mathematical Support of Experimental and Theoretical Studies Conducted by JINR». This proposal concerns developments in the field of mathematical and computational physics, covering problems and topics important to the needs of other JINR Laboratories, and reflecting the interests of Member States. The PAC recommended opening this new theme until the end of 2007, with first priority in 2005.

JINR Educational Programme. The PAC took note of the information about the summer physics practical courses held for students from Member States and noted the great success of these courses organized on the initiative of the University Centre in cooperation with JINR Laboratories. Considering this activity as being important for promoting contacts with Member States and for attracting young people to JINR, the PAC recommended continuation of these courses.

Scientific Reports. The PAC heard with interest the following scientific reports: «Baikal Neutrino Telescope: Present and Future» presented by I. Belolaptikov (JINR), «Double Beta-Decay Experiments: Present and Future», presented by A. Barabash (ITEP, Moscow), and «Quo vadis: Double Beta Decay», presented by F. Šimkovic (Comenius University, Bratislava, Slovakia). The reports were devoted to the problem of the search for the Majorana neutrino mass, which is one of the essential subjects of neutrino physics today.