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 20–21 March.

The Plenipotentiary of the Republic of Belarus, N. 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 «On JINR's Activities, on the Implementation of the Recommendations of the Scientific Council and of the Decisions of the CP in 2002 and Plans for 2003».

The CP approved the activity of the JINR Directorate on the implementation of the JINR Plan of Research and International Cooperation in 2002, on the realization of collaborative research programmes with the Member States, on the extension of the circle of JINR scientific partners. It recognized the achievements of JINR staff in the implementation of the JINR scientific programme, in particular:

— performance of topical theoretical and experimental studies, which have resulted in new significant scientific output, enriching world science;
— fulfilment of the schedule of operation of the Institute's basic facilities in 2002, acceleration of the polarized deuteron beam at the Nuclotron and of the radioactive ^{6}He beam to an energy of 15 MeV/A within Phase I of the DRIBs complex, execution of the planned work on the construction of the new movable reflector for the IBR-2 reactor, start of the assembly of the linear electron accelerator for the IREN facility;
— 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 approved the recommendations of the 92nd and 93rd sessions of the JINR Scientific Council and the JINR Topical Plan of Research and International Cooperation for 2002. The JINR Directorate was commissioned to give funding in 2003 to the priority activities as recommended at the 93rd session of the JINR Scientific Council.

Upon proposals of the JINR Directorate and Laboratories, the CP decided to name one of the alleys near the Frank Laboratory of Neutron Physics after Academician N. Sodnom, who has made an outstanding contribution to the development of JINR.

The CP took note of the report presented by JINR Vice-Director A. Sissakian «On the Programme of JINR's Scientific Research and Development for 2003–2009». The CP approved the general provisions of the proposed Programme and commissioned the Directorate to begin its implementation. It also asked the Plenipotentiaries to start working with the Governments of the JINR Member States on the long-term planning of the scientific and financial participation in the activity of JINR, based on the estimates presented in this Programme.

It was decided to extend the powers of the Working Group under the CP Chairman for developing the strategy of drafting the JINR budget and calculating the Member States' contributions to the budget by renaming it into a Working Group for Financial Issues under the CP Chairman. The CP commissioned this Working

Group, together with the JINR Directorate and national groups, to elaborate a plan of activities for the social and economic reforms to be accomplished in accordance with the Programme of JINR's Scientific Research and Development for 2003–2009, including in the area of pension provision of JINR staff.

With a view to effectively realizing the Programme of JINR's Scientific Research and Development for 2003–2009, the CP agreed with a proposal to establish a three-year financial planning procedure at JINR. The Committee asked the Directorate and the Working Group to present in 2004 a draft financial plan of JINR for the years 2005–2007.

The CP requested the JINR Directorate to publish the final text of the Programme of JINR's Scientific Research and Development for 2003–2009 after its discussion at the 94th session of the JINR Scientific Council.

Based on the report presented by JINR Assistant Director for Economic and Financial Issues V. Katrasev «On the Execution of the JINR Budget in 2002, on the Draft Budget for 2003, on the Member States' Contributions for 2004», the CP took note of the information on the execution of the JINR budget in 2002 with expenditure — US$ 26 798.4 thousand, with income — US$ 28 188.4 thousand.

The CP approved the JINR budget for 2003 with expenditure of US$ 37.5 million, the Member States' contributions for 2003, also the programme of debt restructuring and reforming the system of calculation and payment of the Member States' contributions for 2004–2010, proposed by the Directorate and the Working Group under the CP Chairman. The first stage of this programme is to be implemented in 2004–2006.

The CP agreed that the estimate of the budget income and expenditure of JINR, presented by the Directorate in the Programme of JINR's Scientific Research and Development for 2003–2009 and accepted at this session, provides only the minimum financial resources required for the Institute's activity.

The estimate of the JINR budget for 2004 in income and expenditure was set by the CP to be US$ 38.2 million. Also fixed were the provisional sums of the Member States' contributions paid to the budget in 2004.

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 approved the directions of the financial reform at JINR proposed by the JINR Directorate and the work on the preparation of a unified system of basic documents regulating the financial activity of JINR. The CP approved in general the new text of the Financial Protocol and Financial Regulations presented by the Directorate and by the Working Group under the CP Chairman, and agreed with the Directorate's proposal to amend the JINR Charter.

The CP requested the Directorate to finalize the draft financial documents, to dispatch them to the Plenipotentiaries until 1 May 2003, inviting their comments and suggestions to be received before 15 June 2003.

It was decided that the Working Group under the CP Chairman would meet in July, 2003, to draft the final texts of the proposed amendments to the Charter and of the Financial Protocol and Financial Regulations. The Plenipotentiary of the Republic of Poland was asked to organize this meeting in Cracow (Poland), in which the CP Chairman's participation was invited. The JINR Directorate was asked to present the final drafts of the basic documents regulating the financial activity of JINR for approval at the next meetings of the Financial Committee and CP in 2004.

The CP asked the Plenipotentiaries to receive from the Governments of the Member States and deliver to the JINR Directorate the necessary powers for signing the new texts of the financial documents and amendments to the JINR Charter for the next CP meeting. The CP resolved that in decision-making on this issue at the CP session in 2004 the right to vote would be granted to the Plenipotentiaries of those Member States concerning which sanctions have been applied by the CP's decision taken at the meeting on 21–22 March 1997.

Based on the report presented by N. M. Shumeiko on the meeting of the Finance Committee held on 20–21 February 2003, the CP approved the Finance Committee's Protocol of the meeting and the Directorate's report on the execution of the JINR budget in 2001 with expenditure — US$ 21 321.5 thousand, and with the summary account as of 1 January 2002 being US$ 114 390.0 thousand.

The CP asked the Plenipotentiary of the Russian Federation to organize an audit of JINR's economic and financial activities for the year 2002 in a volume similar to the previous one. To examine the results of the audit, a control commission, consisting of representatives of Russia, Belarus, and Mongolia, was set up.

Based on the information of JINR Chief Scientific Secretary V. Zhabitsky on the election of members of the JINR Scientific Council, the CP established the new membership of the JINR Scientific Council consisting of 50 persons and approved the list of members of the Scientific Council for a term of 5 years.

Taking into account that some members expressed their wish to stay on the Scientific Council for two-three years, the CP asked the JINR Directorate to present a corresponding proposal for rotation of the Council members.

The CP thanked N. Chernoplekov (Russia), M. Della Negra (CERN), C. Détraz (France), F. Dydak (CERN), J. Ganzorig (Mongolia), A. Moskalenko (Moldova), H. Schopper (CERN), G. Trilling (USA), I. Vishnevsky (Ukraine), B. Yuldashev (Uzbekistan) for their long and highly successful work as members of the JINR Scientific Council.

The CP approved the Jury's recommendation on awarding the N. N. Bogoliubov Prize for 2001–2002 to

Academician A. Tavkhelidze (Georgia) and to Professor Y. Nambu (USA) for their outstanding contributions to the theory of colour quarks.

The CP thanked G. Mitsin and M. Frontasieva for the informative scientific reports presented at the session.

SESSIONS OF THE JINR SCIENTIFIC COUNCIL

The 93rd session of the JINR Scientific Council, chaired by JINR Director V. Kadyshevsky, took place in Dubna on 16–17 January.

At the session, Academician V. Kadyshevsky presented a report on the implementation of the recommendations of the 91st and 92nd sessions of the JINR Scientific Council.

Recommendations of the JINR Programme Advisory Committees were presented by their Chairpersons: T. Hallman (PAC for Particle Physics), N. Rowley (PAC for Nuclear Physics), and by H. Lauter (PAC for Condensed Matter Physics).

JINR Vice-Director A. Sissakian presented the draft of «The Programme of JINR's Scientific Research and Development for 2003–2009». This presentation included: concept and objectives of the Programme, proposed research programmes in the fields of JINR's scientific activity, educational programme, social and economic aspects of the programme, and financial resources.

The Council approved the Jury's recommendations on the JINR prizes for 2002, presented by JINR Vice-Director Ts. Vylov, and the Directorate's proposals on the awarding of the title «Honorary Doctor of JINR».

The awarding of the 2002 B. Pontecorvo Prize took place at the session; the laureate delivered a talk on the subject of his research.

The session included elections of the Director of the Laboratory of Information Technologies and of a Deputy Director of the Laboratory of Particle Physics. Vacancies were announced of the Director of the Dzhelepov Laboratory of Nuclear Problems and of Deputy Directors of the Laboratory of Information Technologies. The election for these positions will be held at the 94th session of the Scientific Council.

The following scientific talks were delivered at the session: «Synchrotron Radiation: Prospects of Application in Science and Technologies» by M. Kovalchuk, «Development of the Hadron Therapy Complex at the Phasotron at the Dzhelepov Laboratory of Nuclear Problems» by G. Mitsin, «The Outlook for Investigations of Photochemical and Photobiological Processes of Vision at JINR Basic Facilities» by M. Ostrovsky, and «Project of the Dubna International Advanced School of Theoretical Physics» by A. Filippov.

The Scientific Council took note of the comprehensive report presented by JINR Director V. Kadyshevsky on the implementation of the recommendations taken at the 91st and 92nd sessions of the Scientific Council. The Scientific Council was pleased to note that its resolutions concerning the Scientific Programme of JINR, the operation and upgrade of the basic facilities, and the construction of new facilities were being successfully implemented.

The Scientific Council noted with interest the «Brief Review of the Scientific Results Obtained at JINR in 2002» which provided an essential tool for evaluation.

The Scientific Council thanked Professor I. Meshkov for his highly successful work as Chief Engineer of JINR over the last five years.

The Scientific Council noted that on 1 January 2003 Dr G. Shirkov was appointed as Chief Engineer of JINR for a term of one year.

The Scientific Council took note of the reports presented by the Director of JINR and the Chairpersons of the PACs and endorsed «The JINR Topical Plan for Research and International Cooperation in 2003».

Taking into account the proposals of the JINR Directorate and the recommendations of the PACs, the Scientific Council endorsed the following priority activities in 2003 on which financial and manpower resources should be focused.

In-House Facilities:

— improvement of the Nuclotron beam extraction system and of external beam lines, further efficiency of the complex, achievement of a wider range of accelerated particles and nuclei for the users, operation and development of the Nuclotron, and outphasing of the Synchrophasotron;
— modernization of the IBR-2 reactor according to the schedule of activities approved by the Agreement between JINR and the Russian Ministry of Atomic Energy: construction of the new movable reflector, replacement of the reactor core, manufacturing of the reactor's new fuel loading, and replacement of the cryogenic facility;
— start of physics experiments with radioactive ion beams, completion of Phase I of the Dubna Radioactive Ion Beams (DRIBs) project, implemen-

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

Programme Advisory Committee for Condensed Matter Physics

Chairperson: V. 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

tation of work on the realization of Phase II of the project.

Facilities under Construction:

— decommissioning of the IBR-30 reactor and construction of the IREN facility according to the revised schedule of November 2002 and dedicated funding with a view to completion of its first stage in 2005;
— further development of JINR's telecommunication links, networking, computing and information infrastructure.

Ongoing Research Programmes and Projects. The Scientific Council recommended that the allocation of resources should take into account the scientific impact and visibility of Dubna physicists in international collaborations.

— Studies in modern mathematical physics; theoretical studies in particle physics, nuclear physics, and condensed matter physics, also 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, amongst others at accelerator facilities at IHEP (Protvino), CERN, DESY, BNL, and FNAL;
— study of rare weak processes (projects PIBETA, ANCOR, NEMO-3, FAMILON, E391a, etc.) aimed at verification of the Standard Model of Particle Physics and search for new physics phenomena beyond the Standard Model, measurement of direct CP violation, as well as investigations of neutrino properties and nature;
— 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;
— 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 (e.g., the FASA experiment), 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, PS), BNL (RHIC), GSI (SIS), Uppsala University (CELSIUS), RIKEN, and DESY (HERA);
— development of instrumentation and data acquisition equipment for spectrometers at the IBR-2 reactor to make possible a cold neutron programme, improvement of detectors for research with IREN.

Other Items that Deserve Attention:

— development of the JINR Educational Programme, including special-purpose training of specialists for the Member States; in particular, start of the new project «Dubna International Advanced School of Theoretical Physics»;
— further R&D of accelerator subsystems for the LHC and linear colliders TESLA and CLIC, as well as development of promising accelerator technologies;
— investigation of stochastic and deterministic effects induced in biological objects by ionizing radiation with different linear energy transfers, continuation of the development of new radiopharmaceuticals for cancer diagnostics and treatment.

The Scientific Council took note of the draft of the «Programme of the Scientific Research and Development of JINR for 2003–2009» presented by Vice-Director A. Sissakian and endorsed the general lines of the proposed Draft and asked the JINR Directorate to prepare for the next session the final text of the Programme.

The Scientific Council took note of the information presented by K. Kadyrzhanov, Plenipotentiary of Kazakhstan to JINR, about a plan to construct the DC-60 cyclotron in Astana (Kazakhstan) and to develop a dedicated research programme together with the Flerov Laboratory of Nuclear Reactions and the information presented by L. Masperi, director of CLAF, concerning Schools of Physics and Biology and scientific plans at the MT-25 microtron in Havana (Cuba).

The Scientific Council took note of and concurred with the recommendations made by the PACs at their November 2002 meetings.

Particle Physics Issues. The Scientific Council endorsed the general lines of the particle physics programme outlined in the draft long-range plan. It also agreed with the PAC for Particle Physics, however, that the final seven-year plan document should be strengthened significantly along the lines indicated in the report of the PAC and in further comments provided by the PAC to the JINR Directorate. In particular, the plan for developing a sound vision for the future of the Nuclotron programme should be clearly indicated in the final seven-year plan.

Nuclear Physics Issues. The Scientific Council endorsed the general lines of the Draft Programme of Scientific Research in Nuclear Physics for 2003–2009.

In heavy-ion physics, these include modernization of the basic facilities, completion of the experimental set-ups and proposed infrastructure developments. Modernization of the U400 cyclotron and the preparation of experimental equipment are essential for the future programmes on superheavy elements and with radioactive-ion beams.

Highest priority in nuclear physics with neutrons is given to experiments on fundamental symmetries, on the electromagnetic properties of the neutron and on basic interactions with neutrons. The timely completion of the IREN project, including modernization of experimental equipment and electronics, are urgent issues for a successful realization of the local part of this programme.

The DLNP programme encompasses a wide range of physics objectives pursued both locally at the Phasotron and abroad at leading facilities on the world stage. Participation in projects on weak-interaction physics and properties of the neutrino are especially appreciated.

Condensed Matter Physics Issues. The Scientific Council concurred with the wish of the PAC for Condensed Matter Physics for continued progress of the refurbishment programme of the IBR-2 reactor and for further fulfilment of the agreement with the Russian Ministry of Atomic Energy. The programme to optimize the Broad-Band complex at IBR-2 with respect to the spectrometers and vice versa should be started. This complex is an important part of the IBR-2 refurbishment programme.

The recommendations of the PAC concerning modifications of the text of the seven-year plan of JINR, mainly contained in the minutes of the PAC meeting, should be incorporated in the final version of this plan.

Common Issues. The Scientific Council recommended approval of the Programme of Research at BLTP for 2003–2009 and stressed the strong need for continuous theoretical support of the JINR experimental groups, with special emphasis on experiments at JINR.

The LIT Programme for 2003–2009 is well prepared and the Scientific Council recommended approval of its general lines. In the near future, special attention should be paid to the development of 1-Gb/s internal and external networks. A further important task is network security.

Upon proposal by the JINR Directorate, the Scientific Council appointed F. Macášek (Comenius University, Bratislava, Slovakia) as a new member of the PAC for Condensed Matter Physics and thanked Professor V. Korsunsky (Institute of Biology, Moscow, Russia) for his most successful work as a member of the PAC for Condensed Matter Physics.

The Scientific Council elected by ballot:

- *V. Ivanov* as Director of the Laboratory of Information Technologies for a term of five years,
- *Yu. Potrebenikov* as Deputy Director of the Laboratory of Particle Physics until the completion of the term of office of the LPP Director.

The Scientific Council thanked Professors A. Filippov and I. Puzynin for their highly successful work as Director of the Bogoliubov Laboratory of Theoretical Physics and as Director of the Laboratory of Information Technologies, respectively.

According to the JINR Regulations, the Scientific Council announced the vacancies of Director of the Dzhelepov Laboratory of Nuclear Problems and of Deputy Directors of the Laboratory of Information Technologies.

The Scientific Council congratulated Professor S. Bilenky (JINR) on being awarded the 2002 B. Pontecorvo Prize, in recognition of his outstanding contribution to theoretical research in the field of neutrino oscillations, and Professors V. Meshcheryakov, T. Muminov, V. Okolovich, and H. Rollnik 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 94th session of the JINR Scientific Council, chaired by JINR Director V. Kadyshevsky, took place in Dubna on 5–6 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 20–21 March 2003.

Comments on the Programme of JINR's Scientific Research and Development for 2003–2009 were given by JINR Vice-Director A. Sissakian.

JINR Chief Engineer G. Shirkov reported on the status and operation of the JINR basic facilities.

The recommendations of the JINR Programme Advisory Committees were presented by P. Spillantini (PAC for Particle Physics), N. Janeva (PAC for Nuclear Physics) and H. Lauter (PAC for Condensed Matter Physics).

The session included a round-table meeting «Romania at JINR», at which presentations were given by representatives of Romanian scientific centres, universities and organizations. A dedicated photo exhibition was also organized.

At the session, elections were held of the Director of the Dzhelepov Laboratory of Nuclear Problems and of Deputy Directors of the Laboratory of Information Technologies. Vacancies were announced of Deputy Directors of the Dzhelepov Laboratory of Nuclear Problems to be elected at the 95th session of the Scientific Council.

The following scientific talks were delivered at the session: «What a Physicist Can Say about Global Population Growth» by S. Kapitza, «On the Way to Element 118» by Yu. Oganessian, and «Dzhelepov Laboratory of Nuclear Problems: 1993–2003» by N. Russakovich.

V. Kadyshevsky presented the Directorate's proposals on the awarding of the title «Honorary Doctor of JINR». He also awarded Diplomas to the winners of JINR Prizes for 2002.

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 2003 session, in particular:

— the approval of the JINR Topical Plan of Research and International Cooperation for 2003 based on the recommendations of the Scientific Council and the PACs;

— the approval of the general framework of the Draft Programme of JINR's Scientific Research and Development for 2003–2009 proposed by the JINR Directorate;
— the appointment of the Scientific Council members for a new term of five years;
— the awarding of the N. N. Bogoliubov Prize for 2001–2002 to Professors Y. Nambu (USA) and A. Tavkhelidze (Georgia), in recognition of their outstanding contributions to the theory of coloured quarks.

The Scientific Council highly appreciated JINR's expertise in the field of accelerator physics and engineering and welcomed the current and planned activities in this area, especially of the Flerov Laboratory of Nuclear Reactions, for the Cyclotron Centre of the Slovak Republic in Bratislava, new initiatives for a cyclotron in Astana (Kazakhstan), for the microtron in Havana (Cuba), and for a cyclotron in Belgrade (Serbia and Montenegro).

The Scientific Council took note of the detailed comments on the final draft of «The Programme of JINR's Scientific Research and Development for 2003–2009» presented by JINR Vice-Director A. Sissakian. It endorsed the scientific framework of the proposed Programme and recommended that the Committee of Plenipotentiaries consider it as a basis for future financial and manpower planning for JINR.

The Scientific Council took note of the report «Status and Operation of the JINR Basic Facilities» presented by JINR Chief Engineer G. Shirkov and was pleased to note the stable operation of the JINR basic facilities over the last five years.

The Scientific Council concurred with the recommendations made by the PACs at their April 2003 meetings as presented at this session and their remarks on the Draft Programme of JINR's Research and Development for 2003–2009.

Particle Physics Issues. The Scientific Council congratulated the Veksler and Baldin Laboratory of High Energies on the acceleration and extraction of the Nuclotron's beam of polarized deuterons. It also appreciated the efforts made to convert the Nuclotron into a user-friendly basic facility of JINR.

The Scientific Council shared the concern of the PAC that a number of approved experiments at the Nuclotron had been significantly delayed because the Movable Polarized Target (MPT) was not yet operational. It concurred with the PAC that the MPT should be made operational for physics data taking in less than one year in view of the high priority of this project.

Nuclear Physics Issues. The Scientific Council noted that the DRIBs project after its initial fast progress had slowed down due to inadequate financing. It strongly recommended the continuation of DRIBs without further delay.

The Scientific Council noted success in the experiments on the synthesis of element 116 in the $^{48}Ca + ^{245}Cm$ reaction. It recognized the importance of studies of chemical and physical properties of superheavy elements with the improved VASSILISSA and MASHA set-ups.

The Scientific Council expressed its concern about the continuing delay in the implementation of IREN's time schedules due to lack of necessary funds.

The Scientific Council noted progress in the NEMO-3 and TGV-2 experiments, with DLNP scientists playing a major role.

Condensed Matter Physics Issues. The Scientific Council reiterated its recommendation for the upgrade of the IBR-2 reactor complex as an absolute priority for JINR's international collaboration and obligations. It requested the JINR Directorate to recover the shortfall in general funding for this project, which occurred in 2002. Full funding should be assured for the planned duration of this project, possibly with the full contribution of the Russian Ministry of Atomic Energy.

The Scientific Council thanked Professor H. Lauter for his highly successful work as Chairperson of the PAC for Condensed Matter Physics for five years, and looks forward to the continuation of his work as a member of this PAC.

Upon proposal by the JINR Directorate, the Scientific Council appointed Professor W. Nawrocik (Adam Mickiewicz University, Poznań, Poland) as Chairperson of the PAC for Condensed Matter Physics for a term of three years and Professor L. Jenkovszky (ITP, Kiev, Ukraine) as a new member of the PAC for Particle Physics.

The Scientific Council congratulated Professors G. Bellettini, V. Belyaev, S. Bilenky, V. Glagolev, J. Janik, A. Kudinov, A. Mihul, A. Săndulescu, R. Sosnowski, and Yu. Zanevsky 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.

Since the establishment of JINR, Romania and the Romanian members of the Scientific Council have been playing an active role in the formation of JINR's scientific policy. The Scientific Council thanked the representatives of Romanian research centres, universities and other institutions —- M. Chiş, G. Stratan, M. Vişinescu, G. Adam, D. Haşegan and N. Popa —- for the high quality of their presentations. The Scientific Council noted the extensive and fruitful collaboration of JINR with Romanian research centres, highlighted by the contributions presented and by the dedicated exhibition. In recent years this collaboration has become stronger, leading to the more active participation in JINR research programmes, to a larger representation of Romanian scientists in the scientific advisory bodies of JINR and in the management of the Institute's Laboratories. An important stimulating event for the JINR–Romania relations was the meeting between President of Romania I. Iliescu and JINR Director V. Kadyshevsky in Bucharest in October, 2001.

The Scientific Council elected by ballot:

- *A. Olchevski* as Director of the Dzhelepov Laboratory of Nuclear Problems (DLNP) for a term of five years,
- *G. Adam*, *V. Korenkov* and *P. Zrelov* as Deputy Directors of the Laboratory of Information Technologies (LIT) until the completion of the term of office of the LIT Director.

The Scientific Council thanked Professor N. Russakovich for his highly successful work as Director of the Dzhelepov Laboratory of Nuclear Problems.

According to the Regulation in force, the Scientific Council announced the vacancies of the Dzhelepov Laboratory of Nuclear Problems' Deputy Directors.

MEETING OF THE FINANCE COMMITTEE

A regular meeting of the JINR Finance Committee was held in Dubna on 20–21 February. It was chaired by N. Shumeiko (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 2002 and plans for 2003. The Finance Committee approved the activity of the JINR Directorate on the implementation of the JINR Plan of Research and International Cooperation in 2002, noted the achievements of JINR staff in the implementation of the JINR scientific programme, the fulfilment of the schedule of the operation of the Institutes' basic facilities, as well as the initiatives taken by the JINR University Centre to hold joint seminars in research centres of the Institute's Member States.

Concerning the report made by JINR Vice-Director A. Sissakian «On the Programme of JINR's Scientific Research and Development for 2003–2009», the Finance Committee approved the general provisions of the proposed Programme, recommended that the JINR Committee of Plenipotentiaries support the Directorate's initiative to undertake economic reforms at JINR, and commission the JINR Directorate to begin the realization of the Programme.

Based on the report presented by JINR Assistant Director for Economic and Financial Issues V. Katrasev «On the Implementation of the JINR Budget for 2002, on the Budget Estimates for 2003; on Recommendations of the Working Group under the CP Chairman», the Finance Committee took note of the information about the implementation of the JINR budget in 2002 and recommended that the CP approve the JINR budget for 2003 with the total expenditure of US$ 37.5 million.

Based on the report made by JINR Budget and Financial Planning Department Chief A. Ruzaev «On Basic Documents Regulating the Financial Activity of JINR», the Finance Committee recommended that the CP approve the directions of the financial reform at JINR, proposed by the JINR Directorate, and that the CP approve in general the new text of the Financial Protocol and Financial Regulations presented by the Directorate and by the Working Group under the CP Chairman. The Finance Committee recommended that the CP agree with the Directorate's proposal to amend the JINR Charter and ask the Directorate to finalize the draft financial documents, to dispatch them to the Plenipotentiaries until 1 May 2003, inviting their comments and suggestions to be received before 15 June 2003. The Directorate was requested to present the final version of basic documents regulating the financial activity of JINR for approval at the next meetings of the Finance Committee and CP in 2004. The Finance Committee asked the Plenipotentiaries for the next CP meeting to receive from the Governments of the Member States and deliver to the JINR Directorate the necessary powers for signing the new texts of the Financial Protocol and amendments to the JINR Charter. It was also decided to extend the powers of the Working Group by renaming it into a Working Group for Financial Issues under the CP Chairman.

The Chairman of the Control Commission, V. Drozhenko, Deputy Department Chief of the Russian Ministry of Industry, Science and Technology, reported on the results of the Control Commission meeting held on 4–5 July 2002.

The 18th meeting of the Programme Advisory Committee for Condensed Matter Physics was held on 3–4 April. It was chaired by Professor H. Lauter.

JINR Chief Scientific Secretary V. Zhabitsky reported the recommendations and considerations of the JINR Scientific Council (SC) concerning condensed matter physics. The JINR Committee of Plenipotentiaries approved the recommendations of the 92nd and 93rd sessions of the SC and resolved to give funding in 2003 to the priority activities as recommended at the 93rd session.

Concerning the membership of the PAC for Condensed Matter Physics, the SC thanked Professor V. Korsunsky for his successful work and appointed Professor F. Macášek as a new member.

Discussions at the PAC meeting were focused on questions of modernization of the IBR-2 reactor and on the Programme of JINR's Research and Development for 2003–2009 in the field of condensed matter physics.

IBR-2 Reactor. FLNP Chief Engineer V. Ananiev reported on the status of the IBR-2 upgrade and refurbishment. The PAC was satisfied with the reliability of the performance of the IBR-2 reactor and the progressing upgrade programme concerning the reflector exchange in 2003.

The PAC members highly appreciated their visit to FLNP to see the new reflector assembly on its test stand.

Once again the PAC appreciated Minatom's timely contributed financial support for the IBR-2 modernization, but expressed its concern about the delay of payment from the JINR budget. This might lead to significant delays in the modernization programme, and even some more serious consequences from the side of Minatom might be expected. The PAC repeated its deep concern about why, despite the best financial situation of JINR in 2002 with respect to the last years, the commitment relative to the reactor refurbishment could not be respected in 2002. Even no consequences for the IBR-2 funding appeared in the JINR budget for 2003, which should have been increased by the missing amount. The PAC recommended that the shortfall in the general funding and in the time schedule should be fully recovered by the JINR Directorate in 2003.

JINR Scientific Programme for 2003–2009 in the Field of Condensed Matter Physics. The PAC took note of the revised proposals of the JINR Laboratories for the JINR Scientific Programme in the field of condensed matter physics for 2003–2009, presented by A. Belushkin for FLNP, E. Krasavin for DRRR, and S. Dmitriev for FLNR.

The PAC endorsed the general lines of the second draft of the Programme and asked the JINR Directorate to prepare the final text of the Programme taking into account the remarks concerning the general importance and development of condensed matter physics at JINR and the uniqueness of the large-scale and basic facility — the IBR-2 reactor complex with its spectrometers.

Instrumentation. A status report about the SPN-1 reflectometer was presented by Yu. Nikitenko. This report followed the announcement at the previous PAC meeting that the modernization of the SPN-1 reflectometer had been successfully performed and that the upgraded reflectometer is called REMUR. This upgrade was performed by V. Aksenov, H. Lauter, V. Lauter-Pasuyk, Yu. Nikitenko and A. Petrenko within the framework of the JINR–Germany agreement, with a further support given by the Russian Ministry of Industry, Science and Technology and in collaboration with ILL (Grenoble) and PNPI (Gatchina). Yu. Nikitenko showed that the aims of a considerably increased wideband polarization and of a spectrometer with full polarization analysis had been obtained. The PAC repeated its acknowledgement to the REMUR scientific team for the successful commissioning of the reflectometer.

Activities Previously Approved for Completion in 2003. The PAC approved the report on the theme «Development of the IBR-2 Spectrometer Complex and Information-Computation Infrastructure» and supported the opening of a new theme «Development and Creation of Elements of Neutron Spectrometers for Condensed Matter Investigations» (project leaders A. Belushkin and V. Prikhodko) as a first-priority topic for 2004–2008.

The PAC approved the report on the theme «Radiation Effects and Modification of Materials, Radioanalytical and Radioisotopic Investigations at the FLNR Accelerators» (project leader S. Dmitriev) and supported its continuation as a first-priority topic for 2004–2008.

Scientific Reports. The following scientific and informative reports were presented at the PAC meeting: «Orbital Phase Transitions in Manganites» (V. Shakhmatov), «Investigation of the Interactions of the Aluminium Acceptor Impurities in Silicon by μSR» (T. Mamedov), «Investigation of Crystallines in Solution and Intact Crystalline Lens by X-ray Scattering» (K. Krivandin), «Current Status of the ESS Project» and «The International Society for Muon Spectroscopy» (R. Cywinski).

The PAC recognized the high scientific level of all the reports and looks forward to following up further progress in these areas.

The 18th meeting of the Programme Advisory Committee for Nuclear Physics was held on 7–8 April. It was chaired by Professor N. Janeva.

The PAC was informed on the implementation of recommendations taken at the previous meeting, on the resolution of the 93rd session of the JINR Scientific

Council (January 2003), on the decisions of the JINR Committee of Plenipotentiaries (March 2003) and on the further preparation of JINR's Scientific Research and Development for the years 2003–2009.

The PAC took note of the information about the status of construction of the IREN and DRIBs facilities and of the MASHA heavy-ion magnetic mass-analyzer. The PAC reviewed proposals on first experiments to be performed with IREN and discussed a report on the physics results and progress of the NEMO-3 and TGV experiments. Three new projects — GEMMA, Dark Matter, and SAD — were presented at the meeting as well as three scientific reports. The PAC made the following recommendations on the considered questions.

Heavy-Ion Physics. The PAC noted with deep concern that the DRIBs project after its initial fast progress had slowed down due to inadequate financing. It strongly recommended continuation of the project without further delay. Highest priority should be given to the completion of the beam line and the related components which are needed to start the experimental programme. The developments for Phase II should be continued with high priority to ensure the competitiveness of FLNR in the international frame of RIB facilities.

The upgrade and modernization of the U400 accelerator should be completed with particular urgency, as it allows a more efficient operation of the FLNR cyclotron complex, which is the basis for the research with stable and with radioactive beams.

The PAC congratulated FLNR on the fast progress of the MASHA project, which will allow the mass identification of superheavy elements and moreover open up new perspectives for studies of their nuclear, atomic and chemical properties. The PAC wished the Flerov Laboratory success in experiments on the synthesis of element 116 in the ^{48}Ca + ^{245}Cm reaction and on the study of chemical and physical properties of superheavy elements with improved VASSILISSA and MASHA setups.

Nuclear Physics with Neutrons. The review of the experimental programme planned for the IREN neutron source was highly appreciated by the PAC. The programme is based on top-class experiments which are aimed at investigating the most important fields of fundamental and applied nuclear physics. The PAC expressed its concern about the permanent delay of implementation of IREN's time schedules due to lack of necessary funds. This has almost stopped the activity on dismantling IBR-30 and the implementation of the schedule presented at the 93rd session of the JINR Scientific Council. The PAC recommended that the JINR Directorate enforce the financing of the IREN project. The revised time schedule of the project implementation, including the dismantling of IBR-30, should be presented at the next PAC meeting.

Low- and Intermediate-Energy Physics. The PAC heard with interest the progress report on the NEMO-3 and TGV-2 experiments, with DLNP scientists playing a major role. The impressive results already obtained with the NEMO-2 and TGV-1 set-ups on the observation of the 2ν mode of double beta decay in numerous isotopes (^{100}Mo, ^{48}Ca, etc.) constitute a solid basis for the presently starting measurements with NEMO-3 and TGV-2. In view of the sharply growing interest in measurements of the neutrinoless double beta decay, the PAC recommended that the DLNP group concentrate their efforts on this important direction.

Proposals of New Projects. «*Measurement of the Neutrino Magnetic Moment Using the GEMMA Spectrometer (GEMMA Project)*». In view of recent discoveries of neutrino oscillations, the search for an anomalous magnetic moment of the neutrino is a valid objective of high importance. The present experimental limit of 10^{-10} μ_B can be significantly reduced by using the GEMMA spectrometer placed in a special cave underneath the Kalinin nuclear power plant at a close distance from the core (8.5 or 14.5 m). The new test experiments have demonstrated the possibility of reaching an energy threshold of 3 keV at small backgrounds. The combination of these factors (very close distance, 3-GW thermal power, low energy range, and low background) will allow the group to reach, within two years, a limit of $3 \cdot 10^{-11}$ μ_B or better.

«*Dark Matter Search with Ge Detectors (GENIUS-TF Project)*». The attempts of direct detection of dark matter are of great interest in view of the recent astrophysical and cosmological results. The PAC took note of the participation of DLNP scientists in the joint JINR–Heidelberg project «Dark Matter Search with GENIUS-TF» in the Gran Sasso underground laboratory. It looks forward to a more active participation of DLNP experimentalists.

«*Subcritical Assembly at Dubna (SAD Project)*». The project represents an important step in the worldwide effort towards new and perspective methods employing accelerator-driven systems (ADS) for nuclear power production. The design stage of the project is well developed, and the scientific programme is being prepared. There are several issues important for the final success: coordination and association of JINR activities on ADS studies currently performed by several groups from different JINR Laboratories and involvement of research groups from outside JINR, both from the Member States and from the international community.

The PAC recommended approval of these projects.

Scientific Reports. The PAC heard three scientific reports: «Possible Future γ-Ray Experiments Using Ge Detectors Array» (A. Korichi), «Resonance States in η-Meson–Nucleus Systems» (V. Belyaev), and «Investigation of Light Nucleus Clustering in Relativistic Multifragmentation Processes within the BECQUEREL Project» (P. Zarubin).

The 19th meeting of the Programme Advisory Committee for Particle Physics took place on 15–16 April. It was chaired by Professor T. Hallman.

The PAC noted with interest the information presented by Vice-Director A. Sissakian on the recommendations of the 93rd session of the JINR Scientific Council and on the decisions of the March 2003 meeting of the JINR Committee of Plenipotentiaries.

The PAC noted as a considerable step forward the acceleration and extraction of the Nuclotron's beam of polarized deuterons and congratulated the VBLHE staff on this achievement.

The PAC noted with satisfaction the successful cooperation between JINR and German research centres in the field of particle physics based on the Agreement between JINR and BMBF. In January, 2003, this Agreement was extended for its fourth term until the end of 2005.

The PAC took note of the detailed draft of JINR's Programme of Particle and Relativistic Nuclear Physics Research for 2003–2009, presented by Vice-Director A. Sissakian. The PAC endorsed the general lines of the second draft of the Programme and asked the JINR Directorate to prepare the final text of the Programme, which takes into account all the programmatic remarks made by the PAC, especially visionary concepts intended to promote internationally outstanding large-scale facilities and infrastructure at JINR.

The PAC strongly supported the steps taken to establish the scientific and technical advisory committees for the Nuclotron programme and endorsed the recommendations of the Technical Evaluation Committee for the Scientific Programme of the Nuclotron, in which major efforts in 2003– 2005 should be focused on:

— generation of polarized deuteron beams at an intensity of 10^9 particles per cycle;
— upgrade of the injection complex to increase the injection repetition rate up to 0.5–1 Hz;
— development of the Nuclotron diagnostic system;
— increase of the final ion energy up to the projected target parameters (6 GeV/u);
— slow beam extraction for heavy ions at $A > 40$;
— development of the technical project for the Nuclotron booster;
— upgrade of the ion sources: new laser ion source, upgrade of the EBIS.

The PAC was pleased to note the creation of the JINR central computer complex based on Linux unified platforms with 80 Gflops performance as well as the important contribution to the event simulation for the LHC experiments.

The PAC recommended that the JINR information infrastructure be given stable financing as a basic facility which provides services for the scientific activities of the whole Institute and is important for an efficient cooperation with its Member States as well as with other research centres such as CERN, BNL, Fermilab and others.

The PAC recommended that a strategic modernization of the JINR LAN backbone on the Gigabit Ethernet technology start in 2003 in accordance with suggestions approved by all the JINR Laboratories in 2002. This will allow an essential increase in the availability, reliability and security of the JINR LAN.

The PAC reviewed the proposals of new projects. It recommended approval of the project «Study of Nucleon Structure at η-Meson Production in Polarized Nucleon Collisions at Energies of 1200–1400 MeV» (DELTA-2 project) with first priority until the end of 2006. The PAC noted with interest the report on the project «Construction of the Subcritical Assembly with Combined Neutron Spectra Driven by a Proton Accelerator at Proton Energy 660 MeV for Experiments on Transmutation of Long-Lived Fission Products and Minor Actinides» (SAD project), but recommended that this proposal be considered by an expert panel more suited to assess its technical details and international competitiveness. The PAC recommended approval of the project «Support of Analytical and Numerical Calculations for Collider Experiments» (SANC project) with first priority until the end of 2006. The PAC did not recommend approval of the proposal «Design and Construction of the Hadron Calorimeter and Muon Catcher Prototypes for a Detector of the Next Linear Collider (TESLA)» (DDT project). The PAC recommended a concerted effort be taken to prepare JINR for a strong participation in the preparation for a linear collider programme.

The PAC took note of the report on JINR's participation in the CMS project. The main achievements of the RDMS CMS collaboration in 2002 were:

— successful completion of assembling the absorber of the first end-cup hadron calorimeter;
— completion of manufacturing the proportional chambers at JINR for the first muon station ME 1/1;
— manufacturing of 200 strip silicon detectors for the preshower coordinate detector.

The PAC acknowledged the progress in the construction and assembly of the ATLAS facility according to schedule, the start of data generation and processing, and a stronger contribution of the JINR group to the ATLAS scientific programme.

The PAC congratulated the JINR group on the successful and timely completion of the manufacturing of the dipole magnet iron yoke for the ALICE muon spectrometer. The PAC acknowledged the development of JINR's collaboration with the Institute of Monocrystals (Kharkov, Ukraine) and the Kurchatov Institute on the construction of the PHOS photon spectrometer, and recommended creation at JINR of facilities for testing of lead tungsten crystals. The PAC also acknowledged JINR's active participation in the preparation of the ALICE Physics Performance Report, in particular in the field of particle identification, ϕ-meson studies, identi-

cal particle correlation and cluster finding for the muon spectrometer.

The PAC took note of the completion of the construction of the so-called «initial layout» of the COMPASS spectrometer which is starting the investigations on the muon programme, and mentioned that, for successful continuation of the activities on the COMPASS project at CERN and Dubna, it is necessary to provide maintenance of the apparatus constructed with JINR participation as well as to ensure participation in data processing.

The PAC highly appreciated JINR's large-scale participation in the creation of the detector and in data analysis presented in the report on the NA48 experiment, and noted the results obtained in this experiment on the precise measurement of the parameter $\mathrm{Re}\,(\varepsilon'/\varepsilon)$ in two-pion decays of neutral kaons, which prove unambiguously the existence of the direct CP violation — a fundamental phenomenon of nature predicted by the Standard Model.

The PAC emphasized interesting results obtained in the H1 experiment on precision measurements of the proton structure and test of the Standard Model in a wide kinematic range. The PAC also noted JINR's notable contribution to the study of diffractive processes in deep inelastic scattering and photoproduction as well as to the construction of detectors within the H1 upgrade programme.

The PAC took note of the reports on the PP-singlet, STRELA, BES as well as «Movable Polarized Target» projects and recommended continuation of these activities with first priority until the end of 2006.

The PAC noted with interest two scientific reports presented at this meeting: «JLAB Polarization Transfer Measurements of the Proton's G_E/G_M Ratio: JINR's Recent and Future Contributions» (C. Pedrisat) and «Hadron Interactions with Antiprotons» (U. Wiedner).

The 19th meeting of the Programme Advisory Committee for Nuclear Physics was held on 13–14 November. It was chaired by Professor N. Rowley.

The PAC was informed on the implementation of recommendations taken at the previous meeting and on the resolution of the 94th session of the JINR Scientific Council (June 2003).

The PAC took note of the information about the status of the IREN project, latest results on SHE synthesis, activity with γ-rays at FLNR, research programme at LEPTA and first results of GENIUS-TF tests. The PAC considered six themes previously approved for completion in 2003. A new project, MU-CATALYSIS, was presented at this session. Also the PAC heard information on the results of various schools and conferences held by JINR and two scientific reports. The PAC made the following recommendations on the considered questions.

Heavy-Ion Physics. The PAC congratulated the Flerov Laboratory of Nuclear Reactions on the recent success in the synthesis of the new elements with $Z = 113$ and 115 in the $^{48}\mathrm{Ca} + {}^{243}\mathrm{Am}$ reaction and recommended continuation of these investigations with first priority.

The PAC noted that around one month's beam time would be devoted to the first phase of the γ-ray experiments at FLNR in 2004. The PAC discussed in detail the research programme performed within the projects of the theme «Synthesis of New Nuclei and Study of Nuclear Properties and Heavy-Ion Reaction Mechanisms» and the supporting 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 (DRIBs Project)». The PAC recommended extension of these activities with first priority in 2004–2006.

Nuclear Physics with Neutrons. The PAC noted that complementary financing for the IREN project was sought through the Kurchatov Institute and Minatom. The PAC proposed that the project be presented again, with updated schedules and planning.

Low- and Intermediate-Energy Physics. The PAC heard a report on first results of the JINR–Heidelberg project «Dark Matter Search with GENIUS-TF» in which successful operation of the first four Ge detectors was demonstrated with unprecedented levels of background suppression. The PAC recommended continuation of this impressive experiment with high priority.

Some aspects of physics with positronium which included properties of its bound states, experimental limits on P, CP and CPT conservation, and the search for axions were presented in the report on the research programme at LEPTA. The PAC encouraged the development of concrete ideas for future experiments in parallel with the progress of the LEPTA facility.

The PAC heard a survey talk on the activities at DLNP, covering three themes of research: «Investigation of Fundamental Interactions in Nuclei at Low Energies», «Nucleus and Particle Interactions at Intermediate Energies», «Improvement and Development of the JINR Phasotron for Fundamental and Applied Research».

The PAC was impressed by the diversity of topical projects on neutrino physics, particle physics and accelerator developments. It recommended extension of the activities within these themes with first priority until the end of 2006.

Proposal of New Project «MU-CATALYSIS». Experiments on muon catalyzed fusion at the JINR Phasotron have a 40 years' tradition. Although a huge amount of data has since been collected worldwide in the field, there still exist a number of outstanding problems of which the MU-CATALYSIS collaboration has identified four objectives: study of the $t{-}t$ fusion cycle (already in progress), search for the radiative $d{-}d$ fusion channel, ortho-para effects in $d{-}d$ fusion, and $d{-}d$ and $d{-}t$ fusion at high temperatures.

The PAC believes that all proposed experiments will yield new important results, which can be obtained only at Dubna using the existing facility and a new target technology from Sarov. It recommended approval of the MU-CATALYSIS project with high priority.

Theoretical Physics. The PAC was informed of the main results obtained at BLTP within the theme «Theory of Nuclei and Other Finite Systems» during the period 1999–2003. The PAC noted the importance of this work and recommended extension of this theme with first priority until the end of 2008.

JINR Educational Programme. The PAC heard the report on the theme «Organization, Maintenance, and Development of the University-Type Educational Process at JINR». The UC runs various successful programmes, which significantly contribute to the educational process at JINR and in its Member States. The PAC recommended extension of this theme with first priority until the end of 2008, noting that the education and training of young specialists is of vital importance for the future of JINR.

Scientific Reports. The PAC heard two scientific reports: «Quantum Optics with UCN: Recent Experimental Results and Perspectives» by A. Frank and «Pulsed Neutron Sources for Physics Research» by Yu. Stavisski.

The 20th meeting of the Programme Advisory Committee for Particle Physics took place on 17–18 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 2004–2006 and on the recommendations of the 94th session of the JINR Scientific Council.

The PAC was pleased to note 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 PAC congratulated the staff and the Directorate of the Veksler and Baldin Laboratory of High Energies on the 50th anniversary of this Laboratory and wished them much success in the future. The PAC noted that the Synchrophasotron, launched in 1957, was then the largest accelerator in the world, and during its operation had played an important role in the high-energy physics research at JINR. It was also pleased to learn that the Nuclotron fulfilled the expected schedule in 2003 and delivered beams to 10 experiments. The PAC also congratulated the Nuclotron staff on the successful acceleration of the ^{56}Fe beam.

The PAC took note of the reports presented by S. Vokal, deputy director of the Veksler and Baldin Laboratory of High Energies, A. Efremov, chief researcher of the Bogoliubov Laboratory of Theoretical Physics, V. Kekelidze, director of the Laboratory of Particles Physics, A. Olchevski, director of the Dzhelepov Laboratory of Nuclear Problems, and by V. Ivanov, director of the Laboratory of Information Technologies. It endorsed the main lines of the JINR Programme of Particle and Relativistic Nuclear Physics Research proposed by them for the period 2004–2006.

The PAC took note of the report of the committee to evaluate the scientific programme of the Nuclotron, presented by V. Burov, and endorsed the main conclusions of the committee concerning the core scientific programme of the Nuclotron. The PAC recommended continuation of this activity with the addition of experimentalists and machine physicists as needed to further define the essential measurements to be made, as well as the requirements they place on machine performance, and whether the requirements can be achieved. The PAC noted the importance of timely realization of the essential measurements approved for the Nuclotron and strongly advised that sufficient resources be provided for this programme.

The PAC reviewed the proposals of the new theme and project presented at this meeting — «Dubna International Advanced School of Theoretical Physics» and «OPERA — Neutrino Oscillation Experiment» (JINR's participation), and recommended approval of these activities for execution with first priority.

The PAC noted the addendum to the NIS project and confirmed its previously given recommendation to continue this activity with first priority.

The PAC noted the information on the proposal «Cluster of the JINR Distributed Computer Infrastructure for Current Particle Physics Experiments (LPP's Basic Facility)» (Φ-Cluster project) as well as the urgency of this project for support of ongoing experimental projects and analysis by young scientists. It invited the authors to present a complete project at the next session, noting that in the long term this project should be integrated into an overall strategic plan by LIT to meet the future needs of the experimental programme including development of next-generation GRID technology.

The PAC noted the information on the proposal «Search for Glueballs and Effects of Nucleon Polarized Strangeness in Antiproton Annihilation with PANDA Spectrometer at HESR (GSI)». It invited the authors to present a full proposal at a future meeting in the general framework of JINR's collaboration with the new International Accelerator Facility at Darmstadt.

The PAC took note of the report on JINR's participation in the DIRAC experiment. The PAC noted that in this experiment, performed at CERN's PS, JINR's group plays a leading role at all stages: beginning with the idea of the experiment, development of the project, construction of the set-up, and ending with data taking and processing. It recommended continuation of JINR's participation in this important project.

The PAC took note of the reports on the theme and project previously approved for completion in 2003 — «Development of the Nuclotron Accelerator Complex» and HERMES (JINR's participation), and recommended extension of these activities with first priority.

The PAC took note of the written reports on the themes and projects previously approved for completion in 2003: «Fields and Particles», DELTA–SIGMA, LNS, «Particle Accelerator Physics and Engineering», BOREXINO (JINR's participation), KAPPA, ALPOM, «LHC Damper» (JINR's participation), TESLA (JINR's participation), GAMMA II, SCAN-2, «Organization, Maintenance and Development of the University-Type Educational Process at JINR». It recommended extension of these activities with first priority.

Concerning other projects: EXCHARM-II, CLIC (JINR's participation), SPIN, «Energy Plus Transmutation», the extension with second priority was recommended.

The PAC followed with interest the report «Exploring Compressed Baryonic Matter in Nucleus–Nucleus Collisions at the Future Accelerator at GSI» presented by Professor P. Senger and thanked the speaker. The PAC invited a future proposal on this topic in the general framework of JINR's collaboration with the new International Accelerator Facility at Darmstadt.

The 19th meeting of the Programme Advisory Committee for Condensed Matter Physics was held on 20–21 November. It was chaired by Professor W. Nawrocik.

The PAC Chairperson, W. Nawrocik, welcomed the PAC members and the ex-officio members from JINR. He thanked H. Lauter for his successful work as Chairperson of this PAC during the previous period.

JINR Chief Scientific Secretary V. Zhabitsky informed the PAC about the Resolution of the 94th session of the JINR Scientific Council (June 2003), also about the wish of the Scientific Council to prepare a booklet of projects and themes to be prioritized.

The PAC noted that a complete list of projects and information about the distribution of funds over the running projects were not made available for this meeting in order to assign priorities. The PAC wished to have an overview of the attribution of funds to condensed matter projects in the framework of the guaranteed 16% of the total budget and requested the JINR Directorate to report on this subject at the next meeting.

For the time being the PAC expressed its highest priority for the refurbishment of the IBR-2 reactor and welcomed expectation of recovering the actually missing financing in the nearest future. Also the PAC continued to attribute priorities to research activities and projects according to the old scheme of scientific merit until receiving the financial background and some guidelines with respect to the framework of condensed matter physics as expressed in the seven-year Scientific Programme of JINR.

The IBR-2 Reactor. FLNP Chief Engineer V. Ananiev reported about the status of the IBR-2 refurbishment. The PAC took note of the successful commissioning of the M-3 movable reflector, which is vital for the planned start-up of the IBR-2 reactor by July 2004. The PAC concurred with the request to the JINR Directorate to implement, until the end of 2003, the schedule of payments approved on 11 September 2003 for the modernization of the reactor, as well as to assure in 2004 the volume of financial support by the Russian Ministry of Atomic Energy according to the Agreement.

Activities Previously Approved for Completion in 2003. The PAC approved the report on the theme «Neutron Investigations of the Structure and Dynamics of Condensed Matter» presented by V. Aksenov, on the theme «Theory of Condensed Matter» during the period 1999–2003 presented by N. Plakida, and on the theme «Radiation and Radiobiological Investigations at the JINR Basic Facilities and in the Environment» presented by E. Krasavin and V. Aleinikov, and recommended extension of these research activities with first priority until the end of 2008.

The PAC stressed the significant social importance of the development of new radiopharmaceuticals for cancer therapy.

The PAC approved the report on the theme «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 until the end of 2006 with first priority with respect to the scientific case but without changing the status of the Phasotron.

Scientific Reports. The PAC heard with interest the reports «The Fine Inner Structure of Dendrimers as Revealed by SANS Measurements with the YuMO Spectrometer» and «Present and Future of the Nuclear Analytical Methods in Ecological Monitoring» presented by A. Ozerin and by E. Grosheva and thanked the speakers.

The PAC noted that the Sector of Neutron Activation Analysis (NAA) of FLNP has a well established position and is also playing a significant role in international projects, particularly in collaboration with groups in JINR Member States.

Information on Conferences and Schools. The PAC noted the information on the Blokhintsev Anniversary Conference (8–11 June 2003, Dubna) presented by M. Avdeev.

The PAC noted the information on the 1st Coordination Meeting «Perspectives of Life Sciences Research at Nuclear Centres» (23–29 September 2003, Varna, Bulgaria) presented by S. Dmitriev. It welcomed the reported high level of the presentations and recommended organizing such coordination meetings on a regular basis.

The PAC noted the information on the 2nd International Summer Student School «Nuclear Physics Methods and Accelerators in Biology and Medicine» (19–30 June 2003, Poznan, Poland) presented by S. Ivanova. It appreciated the organization of student schools and recommended continuation of this activity by the JINR University Centre.