

# ACTIVITIES OF JINR GOVERNING AND ADVISORY BODIES

## SESSIONS OF THE JINR COMMITTEE OF PLENIPOTENTIARIES

**A regular session of the Committee of Plenipotentiaries of the Governments of the JINR Member States was held on 25–26 March. It was chaired by the Plenipotentiary of the Government of the Slovak Republic to JINR, S. Dubnička.**

The Committee of Plenipotentiaries (CP) considered the report «Recommendations of the 109th Session of the JINR Scientific Council (February 2011). Major Results of JINR's Activity in 2010 and Plans for 2011» presented by JINR Acting Director M. Itkis.

The CP recognized the successful implementation of activities under the first year of the Seven-Year Plan for the Development of JINR (2010–2016). It appreciated the achievements of JINR scientists in implementing the research programmes, in updating the accelerator and reactor base of the Institute as well as in the areas of information technology, the education of young scientists, and innovative developments in 2010, in particular: the synthesis of element 117 — an outstanding world-class discovery, the completion of the upgrade of the Nuclotron, with the achievement of its design parameters, the successful physical start-up of the IBR-2 modernized reactor, the reliable operation of all the JINR basic facilities for experimental programmes, the significant advances in the development of the Grid infrastructure at JINR, and the important contributions by JINR scientists to the physics results produced in external experiments.

The CP congratulated the group of JINR scientists on the award of the Russian Government Prize for the year 2010 in the field of science and technology «For the Construction of a New Generation of Heavy-Ion Accelerators for Relativistic Nuclear Physics and Innovative Nuclear Power Technologies». It also appreciated the successful start of physics experiments at the upgraded Nuclotron.

The CP welcomed the signature, in 2010–2011, of partnership agreements with a number of the world's

leading research centres in the fields of high-energy physics and accelerator physics and technology, in particular with the John Adams Institute of Accelerator Sciences and Royal Holloway and Bedford New College (United Kingdom).

In accordance with the recommendations of the Scientific Council, the CP commissioned the JINR Directorate to concretize in the near future the scope and areas of JINR's participation in the programme of upgrades of the LHC and its detectors.

The CP looks forward to the successful beginning of physics experiments at the IBR-2M reactor in 2011.

The CP appreciated the successful holding in Dubna of the Italy–Russia Round Table dedicated to the scientific collaboration in the fields of space physics and biology.

The CP congratulated the JINR University Centre on the 20th anniversary of its establishment and wished the staff further successful work in realizing and developing the educational programme.

Regarding the report «Results of the Meeting of the JINR Finance Committee Held on 22–23 March 2011» presented by N. Pershay, Chairman of the Finance Committee, the CP approved the Protocol of this meeting and the report of JINR for the year 2009:

- on the execution of the budget in expenditure — US\$72 068.4 thousand,
- with the summary account as of 01.01.2010 — US\$365 902.0 thousand.

Based on the report «Results of the Audit of the Institute's Financial Activity for the Year 2009» presented by A. Sedyshev, Director of the company «MS-Audit», and on the recommendations of the Finance Committee, the CP approved the auditors' report concerning the financial activity of JINR examined for the year 2009.

Based on the report «Execution of the JINR Budget in 2010» presented by V. Katrasev, Assistant Director of JINR for Financial and Economic Issues, and on the

recommendations of the Finance Committee, the CP took note of the information on the execution of the JINR budget in 2010:

- in expenditure — US\$82 375.8 thousand,
- in income — US\$85 632.8 thousand.

The CP empowered the company «MS-Audit» to examine the Institute's financial activity for the years 2010 and 2011 and approved the plan for auditing this activity presented by the JINR Directorate.

The CP commissioned the Working Group for financial issues of JINR under the CP Chairman to consider an issue on international standardization of the accounting system at JINR.

For the purposes of social security of the JINR employees who are non-citizens of the Russian Federation and in accordance with the Agreement between the Government of the Russian Federation and JINR on the Location and Terms of Activity of JINR in the Russian Federation, the Committee revoked Section V of the Decision of the CP meeting held on 20–23 September 1956: «With the aim of simplifying the mutual settlements between the Institute and the JINR Member States, to allow the taxes collected from the citizens, who work at this Institute, to be included in the contributions of their countries for the financing of JINR, according to the amounts of the taxes collected from the citizens of the corresponding countries».

Having considered the information about the nomination of candidates for the position of the Director of JINR presented by the CP Chairman, S. Dubnička, the programme of action for the directorship of JINR of the candidate for the position of the JINR Director, V. Matveev, and having duly discussed this issue, the Committee of Plenipotentiaries, in an open ballot, elected unanimously Professor Victor Matveev as Director of JINR for a term of five years, in accordance with the JINR Charter and the Regulation for the Director of JINR. The Committee commissioned the CP Chairman to sign, on behalf of JINR, an employment contract with V. Matveev and an order concerning acceptance for employment of V. Matveev.

The CP extended the terms of office of Vice-Director M. Itkis, Vice-Director R. Lednický, Chief Scientific Secretary N. Russakovich, and of Chief Engineer G. Shirkov until the assumption of office by V. Matveev as Director of JINR on 1 January 2012. It also extended the term for M. Itkis as Acting Director of JINR until the formalization of employment relations with V. Matveev as Director of JINR.

The CP thanked Vice-Director R. Lednický for the informative scientific report «Results of Experiments at the LHC» presented at the session.

The Committee of Plenipotentiaries congratulated the international staff on the 55th anniversary of the Joint Institute for Nuclear Research and wished it further successful work for the benefit of science, good health and happiness.

**A regular session of the Committee of Plenipotentiaries of the Governments of the JINR Member States was held on 25–26 November. It was chaired by the Plenipotentiary of the Government of the Republic of Poland to JINR, M. Waligórski.**

The Committee of Plenipotentiaries (CP) considered the report «Recommendations of the 110th Session of the JINR Scientific Council (September 2011). Brief Overview of the Results of JINR Activities in 2011 and Plans for 2012» presented by JINR Acting Director M. Itkis. The CP approved the recommendations of the 109th and 110th sessions of the Scientific Council as well as the JINR Topical Plan of Research and International Cooperation for 2012. It noted with satisfaction the completion of the power start-up of the IBR-2 reactor at the rated average power of 2 MW and the performance of first experiments with extracted neutron beams; the experimental confirmation of the synthesis of element 117, as well as the recognition of the priority of the Dubna–Livermore collaborations in the discovery of elements with  $Z = 114$  and  $116$  in the Technical Report of the International Union of Pure and Applied Chemistry; the accomplishment of the recent runs of the Nuclotron-M for physics experiments, and the successful start of the new project Nuclotron–NICA; the achievement by JINR scientists of important results in external experiments at CERN, Gran Sasso and other centres; the significant advances in the overall development of the JINR infrastructure and the successful start of work to build the Tier1 centre «RRC “Kurchatov Institute” – JINR»; and the use of modern technologies in outreaching the JINR educational activity.

The CP congratulated Professors Yu. Oganessian and M. Itkis on the award of the 2010 State Prize of the Russian Federation in science and technology for the discovery of a new region of stability of superheavy elements.

The CP appreciated the holding, in Dubna on 5 July 2011, of the session of the Russian Government Commission on High Technology and Innovation, which was chaired by the Prime Minister of the Russian Federation, V. Putin, and his visit to JINR during the session. It noted the inclusion of the NICA project by the Commission in the list of six megaprojects that may receive substantial dedicated support from the Russian Government.

The CP also appreciated the visit to JINR by the Prime Minister of the Republic of Kazakhstan, K. Massimov, on 11 July 2011, in which special interest was expressed in the Educational Programme of JINR. An outstanding example of the scientific and technological cooperation with this Member State was the development by JINR and delivery for the National Nuclear Centre in Astana of the DC-60 cyclotron whose first five years of successful operation were celebrated in 2011.

Concerning international cooperation issues, the CP approved the signature of a new Cooperation Agreement between JINR and INFN (Italy) for a term of six years,

which took place on 14 June 2011, welcomed the new positive trends in the development of the mutually beneficial cooperation between JINR and Serbia, and noted the visit of a high-ranking delegation of the Chinese Academy of Sciences to JINR on 3 October 2011.

As proposed by JINR Acting Director V. Matveev, the CP extended the terms of office of Vice-Director M. Itkis, Vice-Director R. Lednický, Chief Scientific Secretary N. Russakovich, and Chief Engineer G. Shirkov until the next session of the Committee of Plenipotentiaries in March 2012. The CP thanked Professor M. Itkis for his successful work as Acting Director of JINR during the past period of time.

Regarding the report «Results of the Meeting of the JINR Finance Committee Held on 22–23 November 2011», presented by S. Kulhánek, Chairman of the Finance Committee, the CP approved the Protocol of this meeting. It also approved the report of JINR for the year 2010 on the execution of the budget in expenditure amounting to US\$82 375.8 thousand, with the summary account as of 01.01.2011 being US\$473 843.0 thousand.

The CP also approved the auditors' report concerning the financial activity of JINR examined for the year 2010, presented by A. Sedyshev, Director of the company «MS-Audit».

Based on the report «Draft Budget of JINR for the Year 2012, Draft Contributions of the Member States for the Years 2013, 2014, and 2015» presented by V. Katrasev, Assistant Director of JINR for Financial and Economic Issues, the Committee approved the JINR budget for the year 2012 with the total expenditure amounting to US\$126.00 million as well as the contributions of the Member States for the year 2012. The Committee determined the provisional volumes of the JINR budgets in income and expenditure for the year 2013 amounting to US\$137.53 million, for the year 2014 — US\$159.04 million and for the year 2015 — US\$180.89 million, and also adopted the provisional sums of the Member States' contributions and of arrears payments for 2013, 2014 and 2015.

The CP allowed the JINR Directorate to index the salary and tariff parts of the compensation package of all staff members by 6%, taking into account the possibilities afforded by the JINR budget in 2012, in accordance with the Collective Bargaining Agreement between the Management and Staff Members of JINR for 2011–2013 and with the official forecast of consumer prices for goods and services in the Russian Federation for the year 2012.

The CP took note of the information about the progress of implementation of the investment agreements between JINR and the Russian Corporation of Nanotechnologies (Rusnano), presented by A. Ruzaev, Assistant Director of JINR for Innovation Development. The Committee approved the Addenda (No. 1

dated 13.10.2010, No. 2 dated 13.10.2010, No. 3 dated 15.09.2011, No. 4 dated 21.09.2011) to the Investment Agreement signed on 31 August 2010 among JINR, the State Corporation «Russian Corporation of Nanotechnologies», the OJSC «Concern «Radiotechnical and Information Systems»», the CJSC «Firm «IT». Information Technologies», and the OJSC «Special Economic Zones», which regulates JINR's participation in the realization of the project for the establishment of an infrastructural nanotechnology centre in Dubna. It also approved Addendum No. 1 dated 15.06.2011 to the Investment Agreement signed on 20 September 2010 among JINR, the State Corporation «Russian Corporation of Nanotechnologies», the LLC «Detectors of Explosives and Drugs» and the LLC «Neutron Technologies», which regulates JINR's participation in the realization of the project «Expansion of Production of Multi-Purpose Detectors for Identification of a Wide Range of Substances Based on Tagged Neutron Technology».

The CP authorized the JINR Director to sign additional agreements and other documents on the projects being implemented in accordance with the above investment agreements, with subsequent informing the Finance Committee and the Committee of Plenipotentiaries of the Governments of the JINR Member States about these actions.

Concerning the information, presented by JINR Acting Director V. Matveev in compliance with the decision of the JINR Finance Committee meeting held on 22–23 November 2011, the CP commissioned the JINR Directorate to prepare — for approval by the Committee of Plenipotentiaries and for agreeing upon with the Government of the Russian Federation — an updated list of officers and persons invited by JINR for official purposes who shall be exempt from individual income tax in accordance with the «Agreement between the Government of the Russian Federation and JINR on the Location and Terms of Activity of JINR in the Russian Federation» (Article 1, Article 21, paragraphs 1c, 3, 5). The Committee also postponed the execution of the decision of the CP meeting held on 25–26 March 2011 until finalization of the issue of exemption from individual income tax in accordance with the new list, retaining the previous arrangement during 2011–2012 as defined by the decision of the CP meeting held on 20–23 September 1956.

The CP thanked VBLHEP Director V. Kekelidze for the scientific report «Project NICA — Status and Future» presented at this session. The Committee commissioned the JINR Directorate, together with the Plenipotentiaries of the Governments of the Member States, to take appropriate measures in the Member States, as well as in other countries and international organizations, towards securing support for the implementation of the NICA project.

# GOVERNING AND ADVISORY BODIES OF THE JOINT INSTITUTE FOR NUCLEAR RESEARCH

## COMMITTEE OF PLENIPOTENTIARIES OF THE GOVERNMENTS OF THE JINR MEMBER STATES

Republic of Armenia	S. Harutyunyan	Republic of Moldova	I. Tighineanu
Republic of Azerbaijan	M. Kerimov	Mongolia	S. Enkhbat
Republic of Belarus	I. Vojtov	Republic of Poland	M. Waligórski
Republic of Bulgaria	S. Tzotchev	Romania	N.-V. Zamfir
Rebulic of Cuba	J. L. Fernández Chamero	Russian Federation	A. Fursenko
Czech Republic	R. Mach	Slovak Republic	S. Dubnička
Georgia	A. Khvedelidze	Ukraine	V. Stogniy
Republic of Kazakhstan	K. Kadyrzhanov	Republic of Uzbekistan	U. Salikhbaev
D. P. Republic of Korea	Li Je Sen	Socialist Republic of Vietnam	Nguyen Van Hieu

## Finance Committee

One representative  
of each JINR Member State

## SCIENTIFIC COUNCIL

Chairman: M. Itkis

Co-Chairman: I. Wilhelm (Czech Republic)

Scientific Secretary: N. Russakovich

O. Bakhran-ogly Abdinov	Azerbaijan	V. Kadyshesky	Russian Federation	J. Ružička	Slovak Republic
I. Antoniou	Greece	M. Kovalchuk	Russian Federation	V. Sahni	India
T. Baatar	Mongolia	K. Królas	Poland	Š. Šaro	Slovak Republic
M. Budzyński	Poland	G. Kulipanov	Russian Federation	N. Shumeiko	Belarus
Gh. Căta-Danil	Romania	V. Kuvshinov	Belarus	A. Skrinsky	Russian Federation
A. Dujsebaev	Kazakhstan	A. Logunov	Russian Federation	P. Spillantini	Italy
M. Ehliashvili	Georgia	V. Matveev	Russian Federation	M. Spiro	France
J. Ellis	Switzerland	T. Muminov	Uzbekistan	Ch. Stoyanov	Bulgaria
S. Galès	France	D. L. Nagy	Hungary	H. Stöcker	Germany
N. Giokaris	Greece	W. Nawrocik	Poland	Gh. Stratan	Romania
B. Grinev	Ukraine	Nguyen Manh Shat	Vietnam	V. Strazhev	Belarus
F. Guzmán Martínez	Cuba	Nguyen Van Hieu	Vietnam	N. Tonchev	Bulgaria
Chen Hesheng	China	Pak Ben Seb	Democratic People's Republic of Korea	C. Turtă	Moldova
R.-D. Heuer	Switzerland	G. Piragino	Italy	I. Wilhelm	Czech Republic
M. Itkis	Russian Federation	G. Pogosyan	Armenia	G. Zinoviev	Ukraine
P. Jenni	Switzerland				

### Programme Advisory Committee for Particle Physics

Chairperson: E. Tomasi-Gustafsson (France)  
Scientific Secretary: V. Kolesnikov

### Programme Advisory Committee for Nuclear Physics

Chairperson: W. Greiner (Germany)  
Scientific Secretary: N. Skobelev

### Programme Advisory Committee for Condensed Matter Physics

Chairperson: V. Kantser (Moldova)  
Scientific Secretary: O. Belov

# INTERNAL ORGANIZATION OF THE JOINT INSTITUTE FOR NUCLEAR RESEARCH

**DIRECTORATE**  
**Acting Director M. Itkis**  
**Vice-Director R. Lednický**  
**Chief Scientific Secretary N. Russakovich**  
**Chief Engineer G. Shirkov**

Bogoliubov Laboratory of Theoretical Physics	Veksler and Baldin Laboratory of High Energy Physics	Dzhelepov Laboratory of Nuclear Problems	Flerov Laboratory of Nuclear Reactions	Frank Laboratory of Neutron Physics	Laboratory of Information Technologies	Laboratory of Radiation Biology	University Centre
Director V. Voronov	Director V. Kekelidze	Director A. Olshevskiy	Director S. Dmitriev	Director A. Belushkin	Director V. Ivanov	Director E. Krasavin	Director S. Pakuliak
<p><i>Research in</i></p> <ul style="list-style-type: none"> <li>– symmetry properties of elementary particles</li> <li>– field theory structures</li> <li>– interactions of elementary particles</li> <li>– theory of atomic nuclei</li> <li>– theory of condensed matter</li> </ul>	<p><i>Research in</i></p> <ul style="list-style-type: none"> <li>– structure of nucleons</li> <li>– strong interactions of particles</li> <li>– resonance phenomena in particle interactions</li> <li>– electromagnetic interactions</li> <li>– relativistic nuclear physics</li> <li>– particle acceleration techniques</li> <li>– interactions of multicharged ions in a wide energy range</li> </ul>	<p><i>Research in</i></p> <ul style="list-style-type: none"> <li>– strong, weak and electromagnetic interactions of particles, particle structure</li> <li>– nuclear structure</li> <li>– nuclear spectroscopy</li> <li>– mesoatomic and mesomolecular processes</li> <li>– particle acceleration techniques</li> <li>– radiobiology</li> </ul>	<p><i>Research in</i></p> <ul style="list-style-type: none"> <li>– properties of heavy elements, fusion and fission of complex nuclei, cluster radioactivity, reactions on an isomer hafnium target</li> <li>– reactions with beams of radioactive nuclei, structure of neutron-rich light nuclei, nonequilibrium processes</li> <li>– interactions of heavy ions with condensed matter</li> <li>– particle acceleration techniques</li> </ul>	<p><i>Research in</i></p> <ul style="list-style-type: none"> <li>– nuclei by neutron spectroscopy methods</li> <li>– fundamental properties of neutrons</li> <li>– atomic structure and dynamics of solids and liquids</li> <li>– high-temperature superconductivity</li> <li>– reactions on light nuclei</li> <li>– materials by neutron scattering, neutron activation analysis and neutron radiography methods</li> <li>– dynamic characteristics of the pulsed reactor IBR-2</li> </ul>	<p><i>Research in</i></p> <ul style="list-style-type: none"> <li>– provision of operation and development of the JINR computing and networking infrastructure</li> <li>– optimal usage of international computer networks and information systems</li> <li>– modern methods of computer physics, development of standard software</li> </ul>	<p><i>Research in</i></p> <ul style="list-style-type: none"> <li>– radiation genetics and radiobiology</li> <li>– photo radiobiology and molecular biophysics systems</li> <li>– radiation protection physics</li> </ul>	<p><i>Directions of activities:</i></p> <ul style="list-style-type: none"> <li>– senior students' education</li> <li>– JINR postgraduate courses</li> <li>– school students' education</li> <li>– staff training and retraining</li> <li>– organization of schools and practice courses in JINR research trends</li> </ul>
							<p><b>Central Services</b></p> <ul style="list-style-type: none"> <li>– central scientific and information departments</li> <li>– administrative and economic units</li> <li>– manufacturing units</li> </ul>

## SESSIONS OF THE JINR SCIENTIFIC COUNCIL

**The 109th session of the JINR Scientific Council took place on 17–18 February. It was chaired by JINR Acting Director M. Itkis and Professor Gh. Stratan of the H. Hulubei National Institute for Physics and Nuclear Engineering (Bucharest).**

The Scientific Council took note of the decisions of the regular session of the Committee of Plenipotentiaries of the Governments of the JINR Member States (November 2010), of the major results obtained by JINR in 2010 and of the activities planned for 2011, presented in the report by JINR Acting Director M. Itkis.

The Scientific Council recognized the impressive achievements of JINR scientists in implementing the research programmes, in updating the accelerator and reactor base of the Institute as well as in the areas of information technology, the education of young scientists, and innovative developments in 2010, in particular: the synthesis of element 117 — an outstanding world-class discovery, the successful upgrade of the Nuclotron, the successful physical start-up of the IBR-2 modernized reactor, the reliable operation of all the JINR basic facilities for the needs of experimental programmes, the important contributions by JINR scientists to the physics results produced in external experiments, and the significant advances in the development of the Grid infrastructure at JINR.

The Scientific Council endorsed the plans of JINR activities for the current year, noting with satisfaction the decision of the Committee of Plenipotentiaries to increase the JINR budget by 21% in 2011.

The Scientific Council supported the efforts being taken by the JINR Directorate to ensure the social package for the JINR employees, in particular the started construction of housing for young scientists, the increase of salaries of the JINR staff in 2010 and the planned increase of salaries in April 2011.

The Scientific Council welcomed the investment agreement signed on 31 August 2010 between JINR and the State Corporation «Russian Corporation of Nanotechnologies», which regulates JINR's participation in the realization of the project for the establishment of an infrastructural nanotechnology centre in Dubna.

The Scientific Council congratulated the JINR University Centre on the 20th anniversary of its establishment and wished the staff further successful work in realizing and developing the educational programme.

The Scientific Council noted the festive activities planned in Dubna on the occasion of the 55th anniversary of JINR on 26 March 2011.

The Scientific Council welcomed the election of Professor Ch. Stoyanov and the appointment of Professor N. Tonchev as new members of the Scientific Council.

**Recommendations on Reported Activities.** The Scientific Council took note of the report «Status of the Nuclotron-M and NICA Projects» presented by VBLHEP Deputy Director G. Trubnikov. It congratulated the VBLHEP Directorate and staff on the accomplishment of the upgrade of the Nuclotron accelerator. This achievement is seen as a major step towards the NICA facility.

The Scientific Council took note of the report «Physical Start-up of the IBR-2 Modernized Reactor» presented by FLNP Director A. Belushkin. It looks forward to the completion of this work, to the accomplishment of the power start-up and to the beginning of the operation of the reactor for experiments in 2011.

The Scientific Council heard with great interest the report «Road Map in the Field of Superheavy Elements» presented by FLNR Scientific Leader Yu. Oganessian and endorsed the proposed programme, expecting that its realization — using the new experimental set-ups being developed under the DRIBs-III project — would yield new knowledge in the nuclear physics and chemistry of superheavy elements. This would enable JINR to keep its leading position in this field of science.

The Scientific Council took note of the report «Young Scientists and Specialists at JINR» presented by the Chairman of the JINR Association of Young Scientists and Specialists, A. Ayriyan. It appreciated the progress of implementation of the programme «Young Staff at JINR» and emphasized the vital importance of this issue for the future of JINR.

**Recommendations in Connection with the PACs.** The Scientific Council concurred with the recommendations made by the PACs at their January 2011 meetings as reported at this session by Professors E. Tomasi-Gustafsson, W. Greiner, and P. Alekseev.

**Particle Physics Issues.** The Scientific Council highly appreciated the progress made in developing the VBLHEP accelerator complex and the fulfillment of obligations for the Nuclotron-M project, emphasizing its recommendation that the JINR Directorate should publish an international call for experiments at this facility.

The Scientific Council was pleased to note that the design of the NICA project is progressing well. Significant modifications for the concept of the NICA collider have been adopted. There is considerable progress in developing a new lattice for the collider and the ring design. However, aggressive work on the design is required in order to stay within the proposed timeline for the project. The Scientific Council endorsed the detailed recommendations taken by the Machine Advisory Committee (MAC) for the Nuclotron-M/NICA accelerator complex at its meeting on 5 October 2010, and

thanked the MAC for providing valuable expertise for this project.

The Scientific Council supported the PAC's recommendations on the approval of the new project «Nuclotron–NICA» for the next construction stage of the VBLHEP accelerator complex and welcomed the proposed programme, strategy and schedule of this project.

The Scientific Council appreciated the progress of the ongoing work to prepare the White Paper dedicated to the research programme of the NICA project and the emergence of new interesting proposals. A synthesis of this work will establish a comprehensive and competitive research programme.

The Scientific Council appreciated the results obtained by the COMPASS collaboration with participation of JINR physicists and supported the recommendation on the approval of the new project COMPASS-II.

The Scientific Council emphasized the scientific significance of the results being obtained with the active participation of JINR physicists in the ATLAS, ALICE, and CMS experiments, encouraging these groups to strengthen their efforts in the data analysis and in the presentation of the results at international conferences.

**Nuclear Physics Issues.** The Scientific Council noted that the studies of chemical properties of transactinide nuclei play a very important role in the JINR seven-year plan of scientific research. This programme includes investigations of the chemical properties of elements 112–114 in the fusion reactions  $^{243}\text{Am} + ^{48}\text{Ca}$  and  $^{242,244}\text{Pu} + ^{48}\text{Ca}$ , as well as measurements of isotope masses of these elements with the use of the upgraded mass-spectrometer MASHA. The Scientific Council recommended continuation of these studies with high priority, supporting strongly the FLNR Directorate's efforts towards construction of urgently needed new radiochemical laboratories.

The Scientific Council supported the PAC's recommendations on the approval of the new projects «A Study of the Nucleon Spin Structure in Strong and Electromagnetic Interactions» (GDH&SPASCHARM) and «Experimental Study of Nuclear Fusion Reactions in the  $pt\mu$  System» (TRITON).

**Condensed Matter Physics Issues.** The Scientific Council noted with satisfaction the physical start-up of the IBR-2 modernized reactor according to the schedule.

The Scientific Council supported the directions of the development of the spectrometer complex and neutron scattering techniques at the IBR-2 modernized reactor, noting the importance of completing the basic configuration of the DN-6, GRAINS, EPSILON-MDS and SKAT instruments in early 2011. It supported the FLNP proposal for developing a specialized neutron diffractometer for the real-time investigations of irreversible processes in condensed matter. The Scientific Council appreciated the principles of the user policy

of the spectrometer complex, regarding this activity as very important not only for FLNP but also for the whole Institute. It was recommended to launch a call for proposals of experiments at the reactor in November 2011.

The Scientific Council noted the efforts being undertaken by VBLHEP towards the construction of a special beam channel at the Nuclotron-M for medical and radiobiological experiments, the development of technical specifications and logistics of this channel being important tasks.

The Scientific Council supported the PAC's recommendations on the continuation of the research via the theme «Radiation Effects and Physical Basis of Nanotechnology, Radioanalytical and Radioisotope Investigations at the FLNR Accelerators» and on the approval of the project «Investigation of the Interaction of Polarized Muons with Matter» (MUON).

**Common Issues.** The Scientific Council was pleased to note that poster sessions of young scientists at the PAC meetings had become a well-established form of activity, expecting continuation of this valuable means of interaction with young researchers. It thanked the PACs for selecting the poster presentations as reports at this session.

**Scientific Reports by Young Scientists.** The Scientific Council appreciated the scientific reports presented by young scientists: «Prospects of SUSY Observation with the ATLAS Detector» by E. Khramov, «Shear and Bulk Viscosities for Pure Glue Matter» by A. Khvorostukhin, « $\mu$ -Veto for Low-Background Experiments» by D. Zinatulina, and «A System for Measurement of a Therapeutic Proton Beam Dose Distribution» by A. Agapov, and thanked the speakers.

**General Discussion.** The Scientific Council encouraged the JINR Directorate to intensify the support of the participation of young scientists from non-Member States in the JINR educational programme.

The Scientific Council invited the Directorate to discuss plans to maximize the work of the available and future facilities not only for particle and nuclear physics but also for plasma physics, atomic physics, molecular physics, medicinal physics and radiobiology, etc.

The Scientific Council wished to be informed about the effectiveness of the proton therapy delivered at JINR and about plans for wide application in cooperation with other similar international centres. A possibility should be considered to organize a dedicated international conference on this subject.

The Scientific Council highly appreciated the Dubna contribution to the CERN scientific programme and reiterated the recommendation given at the previous session that the JINR Directorate should concretize in the near future the scope and areas of JINR's participation in the programme of upgrades of the LHC and its detectors.

The Scientific Council recommended that the JINR Directorate intensify the collaboration between JINR and GSI in the field of relativistic heavy-ion physics and applied research related to this subject. Taking into

account the multitude of scientific projects and programmes in Europe and worldwide, a coordination of JINR objectives with these developments is needed to avoid repetitions and to enhance the effectiveness.

**Awards and Prizes.** The Scientific Council congratulated Professor V. Filchenkov on the award of the title «Honorary Doctor of JINR».

The Scientific Council approved the Jury's recommendations on the JINR prizes for 2010 in the annual scientific research competition in the fields of theoretical physics, experimental physics, physics instruments and methods, and applied physics.

The Scientific Council congratulated the laureates of the 2010 B. Pontecorvo Prize: Professor S. Petcov (SISSA/INFN, Trieste, Italy; Bulgarian Academy of Sciences), awarded for his fundamental contributions to the studies of neutrino propagation in matter,  $\mu \rightarrow e\gamma$  and  $\mu \rightarrow 3e$  processes, and Majorana properties of the neutrino, and Professor Y. Suzuki (University of Tokyo, Japan), awarded for his outstanding contributions to the discovery of atmospheric and solar neutrino oscillations in the Super-Kamiokande experiment.

**Elections.** The Scientific Council elected by ballot E.-M. Ilgenfritz and Yu. Potrebenikov as Deputy Directors of the Veksler and Baldin Laboratory of High Energy Physics (VBLHEP), until the completion of the term of office of the VBLHEP Director.

The Scientific Council announced the vacancies of the positions of the Directors of the Bogoliubov Laboratory of Theoretical Physics, the Flerov Laboratory of Nuclear Reactions and the Frank Laboratory of Neutron Physics. The elections for these positions will take place at the 111th session of the Scientific Council.

**The 110th session of the JINR Scientific Council took place on 15–16 September. It was chaired by JINR Vice-Director M. Itkis and Professor I. Wilhelm of Charles University (Prague).**

M. Itkis informed the Scientific Council about the progress in implementing the recommendations of the 109th session of the Scientific Council and the decisions of the session of the Committee of Plenipotentiaries of the Governments of the JINR Member States (March 2011). JINR Acting Director V. Matveev presented a report on the first-priority tasks of the JINR Directorate for the nearest years.

The progress reports presented at the session concerned the preparation of the IBR-2 modernized reactor for the start of experiments, the effectiveness of the proton therapy delivered at JINR and plans for wide application in cooperation with other international centres, the possibilities for further intensification of the JINR Educational Programme, the ongoing developments at JINR related to the ILC, the JINR–GSI collaboration in the field of relativistic heavy-ion physics, as well as JINR's participation in experiments at the LHC (ALICE, ATLAS, and CMS).

The recommendations of the Programme Advisory Committees were reported by E. Tomasi-Gustafsson (PAC for Particle Physics), W. Greiner (PAC for Nuclear Physics), and O. Belov (PAC for Condensed Matter Physics).

M. Itkis presented the Directorate's proposal for the award of the title «Honorary Doctor of JINR». The presentation of diplomas to the winners of JINR prizes for the year 2010 took place at the session.

The Scientific Council also heard the best reports by young scientists which had been delivered as poster presentations at the PAC meetings.

The Scientific Council adopted the following Resolution.

**General Considerations.** The Scientific Council appreciated the progress in implementing the recommendations of the 109th session of the Scientific Council and the decisions of the session of the Committee of Plenipotentiaries of the Governments of the JINR Member States (March 2011) presented in the report by JINR Vice-Director M. Itkis.

The Scientific Council was pleased to note the new results obtained by JINR in 2011: the power start-up of the modernized IBR-2 reactor and the performance of first experiments with extracted beams; the accomplishment of the regular run of the Nuclotron-M, which was mainly devoted to physics experiments, and the start of the new project Nuclotron–NICA; the new results achieved in the synthesis of superheavy elements, in particular the experimental confirmation of the synthesis of element 117, as well as the recognition of the priority of the Dubna–Livermore collaborations in the discovery of elements with  $Z = 114$  and 116 in the recently published Technical Report of the International Union of Pure and Applied Chemistry; the important results of physics research achieved by JINR scientists in external experiments at CERN, FNAL, and Gran Sasso; the essential contributions of JINR specialists to the development of Grid segments in the Member States; the use of modern technologies in outreaching the educational activity of the JINR University Centre; the active participation of JINR scientists in tests and commissioning of the state-of-the-art equipment for proton therapy in collaboration with the Belgian company IBA.

The Scientific Council congratulated Professors Yu. Oganessian and M. Itkis on the award of the 2010 State Prize of the Russian Federation in science and technology for the discovery of a new region of stability of superheavy elements, and noted that this prestigious award is an important recognition of the outstanding achievements of the staff of the Flerov Laboratory of Nuclear Reactions in this field of scientific research.

The Scientific Council congratulated Professor V. Matveev on his election as Director of JINR, wishing him success in leading the Joint Institute for Nuclear Research, and thanked Professor M. Itkis for his successful work as Acting Director of JINR during the past period of time.



The Scientific Council concurred with the vision of the first-priority tasks of the JINR Directorate for the nearest years and supported the basic principles of the scientific policy presented in the report by Professor V. Matveev.

The Scientific Council highly appreciated the visit to JINR of the Prime Minister of the Russian Federation, V. Putin, during the session of the Russian Government Commission on High Technology and Innovation which was held in Dubna on 5 July 2011. It was pleased to note that the NICA project had been included by the Commission in the list of six megaprojects that may receive substantial dedicated support from the Russian Government.

The Scientific Council also highly appreciated the visit of the Prime Minister of the Republic of Kazakhstan, K. Massimov, to JINR on 11 July 2011, during which special interest was expressed in the educational programme of JINR. It noted that the DC-60 cyclotron, developed by JINR specialists for the National Nuclear Centre in Astana, has been successfully operating for five years.

**Recommendations on Reported Activities.** The Scientific Council took note of the report «Preparation of the IBR-2 Modernized Reactor for the Start of Experiments in 2011» presented by FLNP Director A. Belushkin, and appreciated the progress in commissioning the reactor to the design power and the beginning of first experiments with extracted beams. It recommended focusing of efforts on the completion of the activities for the power start-up of the reactor in the current year, on the obtaining of a license for the routine exploitation of this basic facility within shortest possible time, and on the start of implementation of the user programme in 2012. The Scientific Council reiterated the critical importance of an early launching of the cryogenic moderator, which will greatly expand the experimental capability of the IBR-2 modernized reactor.

Concerning the report «Effectiveness of the Proton Therapy Delivered at JINR and Plans for Wide Application in Cooperation with Other International Centres», presented by DLNP Director A. Olshevskiy, the Scientific Council noted the high quality and social significance of the research conducted at JINR in the field of hadron therapy. It supported the plans for construction of specialized medical equipment and for deployment of hadron therapy methods into wide medical practice.

The Scientific Council took note of the report «On-going Developments at JINR Related to the ILC» presented by JINR Chief Engineer G. Shirkov. It appreciated the important results achieved by JINR in the various fields of ILC activity, which concern work on photo injector prototype, beam diagnostics systems, design and construction of cryomodules. In particular, scientists of JINR and Belarussian research centres have developed and are starting to implement a complex programme to reproduce niobium cavity fabrication tech-

nology for cryogenic accelerator systems, which can be used for the ILC itself and will be requested for other applications, e.g., in accelerator physics, medical beam therapy, isotope production, etc. The Scientific Council encouraged extension of the activities related to the future accelerators including the development of the CLIC facility, and expressed its wish to be informed about the progress of these activities at future sessions.

Concerning the report «JINR–GSI Collaboration in the Field of Relativistic Heavy-Ion Physics» presented by VBLHEP Director V. Kekelidze, the Scientific Council highly appreciated this collaboration, based on complementarity of the scientific objectives, and welcomed the proposals for its intensification, which concern the joint programme of research with extracted beams at the Nuclotron-M, the preparation and implementation of research programmes at NICA and at FAIR (experiment CBM) as well as activities in the field of applied research at the VBLHEP accelerator complex. The Scientific Council strongly recommended that the JINR Directorate provide the programme of research with extracted beams at the Nuclotron-M with high-priority funding.

The Scientific Council took note of the reports «JINR's Participation in Experiments at the LHC» presented by the leaders of the JINR groups in the ALICE, ATLAS, and CMS experiments A. Vodopyanov, V. Bednyakov, and A. Zarubin, highly appreciated the efforts already taken by the Dubna teams of these collaborations to secure the reliable operation of the detectors, and noted the significance of the first scientific results produced by them. The Scientific Council looks forward to regular presentations of reports about the contributions of the JINR groups to data analysis at its future sessions, especially by young scientists. It also reiterated its wish to be informed about the plans for JINR's participation in the programme of upgrades of the LHC detectors for future experiments at the LHC.

The Scientific Council supported the measures proposed in the report «Possibilities for Further Intensification of the JINR Educational Programme» by UC Director S. Pakuliak. In particular, they include the use of the experience in training of Kazakhstan's Bachelors and Masters in future programmes for students from other Member States, the extension of the programmes of international summer student practical courses and more active involvement of the JINR laboratories in the process, the update of the JINR Fellowship Programme, and the continuation of educational work with high-school teachers of physics. The need to improve the living infrastructure for visiting students was also emphasized. The Scientific Council welcomed the efforts towards further development of the JINR Educational Programme.

**Recommendations in Connection with the PACs.** The Scientific Council concurred with the recommendations made by the PACs at their June 2011 meetings as reported at this session by the Chairperson of

the PAC for Particle Physics, E. Tomasi-Gustafsson, by the Chairperson of the PAC for Nuclear Physics, W. Greiner, and by the Scientific Secretary of the PAC for Condensed Matter Physics, O. Belov.

**Particle Physics Issues.** The Scientific Council highly appreciated the progress that had been made in developing elements of the NICA complex, in particular the successful construction and tests of the superconducting magnet prototypes, of the ion and polarized particle sources as well as in designing the collider lattice. It endorsed the detailed recommendations taken by the Machine Advisory Committee (MAC) for the Nuclotron–NICA accelerator complex and thanked the MAC for providing valuable expertise for this project.

The Scientific Council appreciated the progress of the ongoing work to prepare the White Paper dedicated to the research programme of the NICA project and the broad international involvement in the preparation of this document. It also appreciated the substantial progress achieved in designing the MPD detector and the start of prototyping its subsystems.

The Scientific Council emphasized that the realization of the research programme to be performed by using the Nuclotron extracted beams is extremely important. Due to the intensive schedule for the commissioning of the experimental set-ups, it supported the PAC's recommendation on the preparation of a project to study hot dense baryonic matter at the Nuclotron, to be presented at the next PAC meeting.

The Scientific Council recognized the scientific significance of the results being obtained with the active participation of JINR physicists in the ATLAS, ALICE, and CMS experiments, and encouraged these groups to strengthen their efforts in the data analysis and in the presentation of the results at international conferences.

The Scientific Council supported the PAC's recommendations on the continuation of the current activities in particle physics within the suggested time scales, as well as on the closure of four projects, as outlined in the PAC report.

**Nuclear Physics Issues.** The Scientific Council welcomed the FLNP plans concerning the speed-up in bringing the parameters of the IREN source up to highest possible standards of equivalent facilities in Europe, and acknowledged the importance of doing so for the realization of the JINR scientific programme and for attracting scientists from Member States.

The Scientific Council supported the FLNR proposal on the synthesis of heavy neutron-rich nuclei formed in low-energy multi-nucleon transfer reactions and recommended that the Laboratory start to work on the details of this proposal.

The Scientific Council recognized the fundamental importance of searching for the neutrinoless double-beta decay of  $^{76}\text{Ge}$  in neutrino physics and supported the

continuation of the GERDA project with high priority.

**Condensed Matter Physics Issues.** The Scientific Council appreciated the efforts being taken by FLNP to upgrade the IBR-2 spectrometer complex, in particular the DIN-2PI neutron inelastic scattering spectrometer and the DN-6 diffractometer. It also supported the approval of the RTD Diffractometer project for implementation in 2012–2015 with first priority.

The Scientific Council noted the high quality of the research within the framework of the themes reviewed at the PAC meeting: «Novel Development and Creation of Equipment for the IBR-2M Spectrometer Complex», «Investigations of Nanosystems and Novel Materials by Neutron Scattering Methods», and «Research on the Biological Effect of Heavy Charged Particles with Different Energies», and supported the recommendations on the continuation of these themes until the end of 2014.

The Scientific Council welcomed the initiative to establish an inter-institute radiobiological basis at JINR intended for experimental research on the radiation safety of long-term space flights and for fundamental and applied studies in general and space radiobiology, which was proposed at the round table «Topical Issues of Radiation Safety of Long-Term Space Flights» (Dubna, 25–26 April 2011) dedicated to the 50th anniversary of the first manned space flight.

**Memberships of the PACs.** As proposed by the JINR Directorate, the Scientific Council appointed Professor A. Ereditato (University of Bern, Switzerland) as a new member of the PAC for Particle Physics for a term of three years to replace Professor N. Walker. It thanked Professor N. Walker for his successful work as member of this PAC.

**Scientific Reports by Young Scientists.** The Scientific Council appreciated the scientific reports presented by young scientists: «Asymmetric Quasi-Fission in Reactions with Heavy Ions» by G. Knyazheva, «Microbial Synthesis of Silver Nanoparticles by *Streptomyces glaucus* and *Spirulina platensis*» by I. Zinicovscaia, «Structure Peculiarities of  $\alpha$ -Crystallin Studied by Small-Angle Neutron and X-ray Scattering» by T. Murugova, and «Design of the Nuclotron Booster in the NICA Project» by A. Tuzikov, and thanked the speakers.

**JINR Awards.** The Scientific Council endorsed the proposal of the JINR Directorate to award the title «Honorary Doctor of JINR» to Professors L. Pikelner and L. Zolin, in recognition of their outstanding contributions to the advancement of science and the education of young scientists.

The Scientific Council congratulated the laureates of the JINR prizes for 2010 — winners of the annual scientific research competition in the fields of theoretical physics, experimental physics, physics instruments and methods, and applied physics.

## MEETINGS OF THE JINR FINANCE COMMITTEE

**A meeting of the JINR Finance Committee was held on 22–23 March. It was chaired by N. Pershay, a representative of the Republic of Belarus.**

The Finance Committee considered the report «Recommendations of the 109th Session of the JINR Scientific Council (February 2011). Major Results of JINR's Activity in 2010 and Plans for 2011» presented by JINR Acting Director M. Itkis.

Taking note of the recommendations of the 109th session of the Scientific Council, the Finance Committee recognized the successful implementation of activities envisioned for the first year of the Seven-Year Plan for the Development of JINR (2010–2016) and the timely delivery of resources for the priority fields of activities by the JINR Directorate in 2010. This largely contributed to the significant results produced, in particular: the synthesis of element 117 — an outstanding world-class discovery, the completion of the upgrade of the Nuclotron, with the achievement of its design parameters, the successful physical start-up of the IBR-2 modernized reactor, the reliable operation of all the JINR basic facilities for experimental programmes, the significant advances in the development of the Grid infrastructure at JINR, and the important contributions by JINR scientists to the physics results produced in external experiments.

The Finance Committee congratulated the group of JINR scientists on the award of the Russian Government Prize for the year 2010 in the field of science and technology «For the Construction of a New Generation of Heavy-Ion Accelerators for Relativistic Nuclear Physics and Innovative Nuclear Power Technologies».

The Finance Committee congratulated the JINR University Centre on the 20th anniversary of its establishment and wished the staff further successful work in realizing and developing the educational programme.

Based on the information on the results of the audit of the Institute's financial activity for the year 2009 presented by A. Sedyshev, Director of the company «MS-Audit», the Finance Committee recommended that the CP approve the auditors' report concerning the financial activity of JINR and the JINR report for the year 2009: on the execution of the budget in expenditure — US\$72 068.4 thousand, with the summary account as of 01.01.2010 — US\$365 902.0 thousand.

Based on the report «Execution of the JINR Budget in 2010», presented by V. Katrasev, Assistant Director of JINR for Financial and Economic Issues, the Finance Committee recommended that the CP take note of the information on the execution of the JINR budget in 2010 in expenditure — US\$82 375.8 thousand, in income — US\$85 632.8 thousand.

The Finance Committee recommended that the CP empower the company «MS-Audit» to examine the Institute's financial activity for the years 2010 and 2011

and approve the plan for auditing this activity, presented by the JINR Directorate. It was also recommended to commission the Working Group for financial issues of JINR under the CP Chairman to consider an issue on international standardization of the accounting system at JINR.

For the purposes of social security of the JINR employees who are non-citizens of the Russian Federation and in accordance with the Agreement between the Government of the Russian Federation and JINR on the Location and Terms of Activity of JINR in the Russian Federation, the Finance Committee recommended that the CP revoke Section V of the Decision of the CP meeting held on 20–23 September 1956 which reads: «With the aim of simplifying the mutual settlements between the Institute and the JINR Member States, to allow the taxes collected from the citizens who work at this Institute to be included in the contributions of their countries for the financing of JINR, according to the amounts of the taxes collected from the citizens of the corresponding countries».

The Finance Committee thanked G. Trubnikov, Deputy Director of the Veksler and Baldin Laboratory of High Energy Physics, for the informative scientific report «Results of the Nuclotron Upgrade. Further Development Programme» presented at this meeting.

**A meeting of the JINR Finance Committee was held in Dubna on 22–23 November. It was chaired by S. Kulhánek, a representative of the Czech Republic.**

The Finance Committee heard the report «Recommendations of the 110th Session of the JINR Scientific Council (September 2011). Brief Overview of the Results of JINR Activities in 2011 and Plans for 2012» presented by JINR Acting Director M. Itkis.

Having taken note of the recommendations of the 110th session of the Scientific Council, the Finance Committee appreciated the timely delivery by the JINR Directorate of resources for the research programmes under the second year of the Seven-Year Plan for the Development of JINR for 2010–2016 according to the priorities approved by the Committee of Plenipotentiaries. This has largely contributed to the following achievements: the completion of the power start-up of the IBR-2 reactor at the rated average power of 2 MW and the performance of first experiments with extracted neutron beams; the experimental confirmation of the synthesis of element 117, as well as the recognition of the priority of the Dubna–Livermore collaborations in the discovery of elements with  $Z = 114$  and 116 in the Technical Report of the International Union of Pure and Applied Chemistry; the accomplishment of the recent runs of the Nuclotron-M for physics experiments, and the successful start of the new project Nuclotron–NICA; the achievement by JINR scientists of important results in external experiments at CERN, Gran Sasso and other

centres; the significant advances in the overall development of the JINR infrastructure and the successful start of work to build the Tier1 centre «RRC “Kurchatov Institute” – JINR»; and the use of modern technologies in outreaching the JINR educational activity.

The Finance Committee congratulated Professors Yu. Oganessian and M. Itkis on the award of the 2010 State Prize of the Russian Federation in science and technology for the discovery of a new region of stability of superheavy elements.

The Finance Committee appreciated the holding, in Dubna on 5 July 2011, of the session of the Russian Government Commission on High Technology and Innovation, which was chaired by the Prime Minister of the Russian Federation, V. Putin, as well as the inclusion of the NICA project by the Commission in the list of six megaprojects that may receive substantial dedicated support from the Russian Government.

The Finance Committee also appreciated the visit to JINR by the Prime Minister of the Republic of Kazakhstan, K. Massimov, on 11 July 2011, and the special interest that was expressed in the Educational Programme of JINR.

The Finance Committee welcomed the signature of a new Cooperation Agreement between JINR and INFN (Italy) for a term of six years, which took place on 14 June 2011, as well as the new positive trends in the development of the mutually beneficial cooperation between JINR and Serbia.

Based on the report «On the Results of the Audit of JINR Activities in 2010» presented by A. Sedyshev, Director of the company «MS-Audit», the Finance Committee recommended that the CP approve the auditors' report concerning the financial activity of JINR examined for the year 2010 as well as the report of JINR for the year 2010 on the execution of the budget in expenditure amounting to US\$82 375.8 thousand, with the summary account as of 01.01.2011 being US\$473 843.0 thousand.

Based on the report «Draft Budget of JINR for the Year 2012, Draft Contributions of the Member States for the Years 2013, 2014, and 2015» presented by V. Katrasev, Assistant Director of JINR for Financial and Economic Issues, the Finance Committee recommended that the CP approve the JINR budget for the year 2012 with the total expenditure amounting to US\$126.00 million as well as the contributions of the Member States for the year 2012. It was also recommended to determine the provisional volumes of the JINR budgets in income and expenditure for the year 2013 amounting to US\$137.53 million, for the year 2014 — US\$159.04 million and for the year 2015 — US\$180.89 million, as well as to adopt the provisional sums of the Member States' contributions and of arrears payments for 2013, 2014 and 2015.

The Finance Committee recommended that the CP allow the JINR Directorate to index the salary and tariff parts of the compensation package of all staff mem-

bers by 6%, taking into account the possibilities afforded by the JINR budget in 2012, in accordance with the Collective Bargaining Agreement between the Management and Staff Members of JINR for 2011–2013 and with the official forecast of consumer prices for goods and services in the Russian Federation for the year 2012. It also recommended that the JINR Directorate and the Working Group for financial issues of JINR under the CP Chairman prepare amendments and additions to the basic documents in force: «Internal Financial Rules» and the «Regulation for the Purchase and Sale of Equipment, Stock and Other Objects», due to legislation changes in the host country of JINR and in view of new challenges faced by JINR.

Concerning the information on software support of JINR activities in the fields of document circulation, management of scientific projects, and accounting, presented by LIT Acting Deputy Director V. Korenkov, the Finance Committee recommended that the JINR Directorate develop a detailed programme for the transition to the IC 8.2 unified information platform for addressing issues of financial, tax, managerial, personnel and payroll accounting, and of electronic document circulation at JINR.

Concerning the information about the progress of implementation of the investment agreements between JINR and the Russian Corporation of Nanotechnologies (Rusnano), presented by A. Ruzaev, Assistant Director of JINR for Innovation Development, the Finance Committee recommended that the CP approve the Addenda (No. 1 dated 13.10.2010, No. 2 dated 13.10.2010, No. 3 dated 15.09.2011, No. 4 dated 21.09.2011) to the Investment Agreement signed on 31 August 2010 among JINR, the State Corporation «Russian Corporation of Nanotechnologies», the OJSC «Concern “Radiotechnical and Information Systems”», the CJSC «Firm “IT”. Information Technologies», and the OJSC «Special Economic Zones», which regulates JINR's participation in the realization of the project for the establishment of an infrastructural nanotechnology centre in Dubna. It was also recommended to approve Addendum No. 1 dated 15.06.2011 to the Investment Agreement signed on 20 September 2010 among JINR, the State Corporation «Russian Corporation of Nanotechnologies», the LLC «Detectors of Explosives and Drugs» and the LLC «Neutron Technologies», which regulates JINR's participation in the realization of the project «Expansion of Production of Multi-Purpose Detectors for Identification of a Wide Range of Substances Based on Tagged Neutron Technology».

The Finance Committee recommended that the CP authorize the JINR Director to sign additional agreements and other documents on the projects being implemented in accordance with the above investment agreements, with subsequent informing the Finance Committee and the Committee of Plenipotentiaries of the Governments of the JINR Member States about these actions.

The Finance Committee thanked FLNP Director A. Belushkin for the scientific report «Power Start-up

of the IBR-2 Reactor and First Experiments at It» presented at the meeting.

## MEETINGS OF THE JINR PROGRAMME ADVISORY COMMITTEES

**The 33rd meeting of the Programme Advisory Committee for Nuclear Physics was held on 20–21 January. It was chaired by Professor W. Greiner.**

The Chairperson of the PAC reported on the implementation of the recommendations taken at the previous meeting. JINR Chief Scientific Secretary N. Russakovich informed the PAC about the Resolution of the 108th session of the Scientific Council (September 2010) and about the decisions of the Committee of Plenipotentiaries (November 2010).

The PAC appreciated the results obtained within the framework of the themes «Information, Computer and Network Support of JINR's Activity» and «Mathematical Support of Experimental and Theoretical Studies Conducted by JINR», and noted the importance of this work carried out in collaboration with research institutions of the JINR Member States and other countries. It recommended continuation and development of the activities under these themes until the end of 2013, with special emphasis on data protection in the Grid environment.

Concerning the report «FLNR Radiochemical Research (Present Status and Seven-Year Plan)» presented at the meeting, the PAC noted that the studies of chemical properties of transactinide nuclei play an important role in the JINR seven-year plan. The programme includes investigations of the chemical properties of elements 112–114 in the fusion reactions  $^{243}\text{Am} + ^{48}\text{Ca}$  and  $^{242,244}\text{Pu} + ^{48}\text{Ca}$ , as well as measurements of the isotope masses of these elements using the upgraded mass-spectrometer MASHA. The PAC strongly supported the FLNR Directorate's efforts towards construction of new radiochemical laboratories.

The PAC recognized the fundamental importance of polarization studies proposed in the new GDH&SPASCHARM project which is intended for experimental investigations of a wide scope of issues related to QCD spin-flavor structure of protons and neutrons. These experiments require the use of polarized targets and beams which determine the key role of the JINR physicists who developed two frozen spin polarized targets to be used in the proposed experimental programme. The PAC considered the GDH&SPASCHARM project to be very important and recommended its approval for the years 2011–2013 with high priority.

The PAC heard with interest the information on the new project TRITON to study M1 and E0 transitions in the  $pt$ -fusion reaction in the  $pt\mu$  molecule. The study

of the channel yielding  $e^+e^-$  pairs is of special interest. In the only experiment with  $pt\mu$  molecules these pairs were not registered, and the yields obtained for the other channels ( $\gamma$  and  $\mu$ ) considerably exceed the theoretical expectations. The values of the extracted nuclear matrix elements in the  $A = 4$  system are within reach for developing calculations in modern effective field theory, which is basically a test of QED under the influence of many-body problems. The PAC recommended approval of the TRITON project for the years 2011–2013 with high priority.

The PAC highly appreciated the scientific report «Effect of Accelerating Medium as a General Wave Phenomenon» presented by A. Frank on the results of experiments performed at ILL (France), and supported continuation of this prominent activity. The PAC also heard with interest the report «Formation of Strongly Deformed Nuclear States» by A. Zubov, and recommended improvements and extensions of these calculations.

The PAC appreciated the poster presentations of young scientists in the field of nuclear physics research and selected the presentations «Shear and Bulk Viscosities for Pure Glue Matter» by A. Khvorostukhin (BLTP) and « $\mu$ -Veto for Low-Background Experiments» by D. Zinatulina (DLNP) to be reported at the Scientific Council's session.

**The 34th meeting of the Programme Advisory Committee for Particle Physics was held on 25–26 January. It was chaired by Professor E. Tomasi-Gustafsson.**

JINR Vice-Director R. Lednický informed the PAC about the Resolution of the 108th session of the JINR Scientific Council (September 2010) and about the decisions of the JINR Committee of Plenipotentiaries (November 2010).

The PAC took note of the report on the status of the Nuclotron-M/NICA projects, and congratulated the VBLHEP accelerator team for the significant progress in developing the accelerator complex and for the fulfillment of obligations for the Nuclotron-M project. It also reiterated the encouragement given at its previous meeting to publish an international call for experiments at the Nuclotron-M.

The PAC was informed about the ongoing work to prepare the White Paper dedicated to the research programme of the NICA project, and noted the progress reached in this direction and the emergence of new interesting proposals. It recommended a synthesis of this work in order to form a comprehensive research pro-

gramme taking into account the competitiveness and complementarity with the research at CERN, at RHIC and FAIR.

The PAC noted that special efforts are needed to motivate JINR specialists to lead preparations and participate in experiments at external beams of the Nuclotron-M, and encouraged the preparation of a physics programme for the fixed target experiments at this facility.

The PAC appreciated the report presented by the Machine Advisory Committee (MAC) for the Nuclotron-M/NICA accelerator complex. In particular, the MAC recognized the good progress of the design of the NICA project, the adoption of significant modifications for the NICA collider's concept, as well as the considerable progress in developing a new lattice for the collider and for the ring design. More aggressive work on the design was suggested in order to stay within the proposed timeline for the project.

The PAC took note of the new project Nuclotron-NICA for the next construction stage of the VBLHEP accelerator complex. It endorsed the proposed programme, strategy and schedule, and recommended approval of this project for execution with first priority until the end of 2015.

The PAC requested the Nuclotron team to design the injector complex Linac Booster to present-day particle intensities. The Committee pointed to an urgent need for a state-of-the-art detector for fixed target experiments using the opportunity to study the 1–5 A GeV physics with high precision starting in 2012, going beyond the studies done at the AGS facility at BNL. In this respect the PAC encouraged the JINR Directorate to pay special attention to a fair return of its LHC and RHIC investments, especially in the field of electronics and readout.

The PAC took note of the report on the project COMPASS and of the proposal of a new project COMPASS-II. The Committee appreciated the results obtained by this collaboration with the participation of JINR physicists, noted the importance of the proposed research programme, and recommended approval of JINR's participation in this project with first priority until the end of 2013.

The PAC took note of the reports on the participation of the JINR groups in the ATLAS, ALICE, and CMS experiments. It emphasized the scientific significance of the results being obtained with the active participation of JINR physicists, and encouraged the groups to strengthen their efforts in the data analysis and in the presentation of the results at international conferences. The PAC particularly appreciates the presentations by young physicists who are involved in the data analysis.

The PAC heard with interest the scientific reports presented at the meeting: «Is There Any LSND Anomaly?» by A. Bolshakova, «Borexino: Current Results and Future» by O. Smirnov, and «Spin Physics at NICA» by O. Teryaev. The Committee emphasized the

importance of JINR's ongoing and planned activities in neutrino physics and related subjects. It also encouraged the JINR Directorate to present a comprehensive programme on spin physics for the Nuclotron-M and NICA.

The PAC noted with interest the poster presentations in particle physics research presented by young scientists, and selected the poster «Prospects of SUSY Observation with the ATLAS Detector» by E. Khramov to be reported at the Scientific Council's session.

**The 33rd meeting of the Programme Advisory Committee for Condensed Matter Physics was held on 27–28 January. It was chaired by Professor V. Kantser.**

The Chairperson of the PAC presented a short overview of the PAC report delivered at the session of the JINR Scientific Council in September 2010 and information about the implementation of the recommendations of the previous PAC meeting. JINR Chief Scientific Secretary N. Russakovich informed the PAC about the Resolution of the 108th session of the JINR Scientific Council (September 2010) and about the decisions of the JINR Committee of Plenipotentiaries (November 2010). The PAC was pleased to note that most of the recommendations of the previous PAC meeting concerning JINR research in the areas of condensed matter physics had been accepted by the JINR Scientific Council and Directorate.

The PAC was informed about the completion of the modernization of the IBR-2 reactor, about the physical start-up of the reactor and about the main objectives for 2011. It recommended concentration of efforts on further work for the physical and power start-ups of the reactor in 2011 and on the start of user operation in 2012.

The PAC took note of the analytical report on the directions of the development of the spectrometer complex and neutron scattering techniques at the IBR-2 modernized reactor in a 10-year perspective in view of present-day possibilities of the synchrotron radiation sources. It recommended completion of the basic configuration of the DN-6, GRAINS, EPSILON-MDS and SKAT instruments in early 2011, regarding this work as a major task of the re-start of experimental investigations in the area of neutron scattering.

The PAC heard with interest a report on the status of the GRAINS project on the construction of a new multifunctional reflectometer with horizontal sample plane at channel 10 of the IBR-2 modernized reactor. It approved the stage-by-stage realization of this project and expressed hope that the initial configuration of the instrument would start by the end of 2011.

The PAC appreciated the current status of the construction of the cold neutron source at the IBR-2 modernized reactor. It also took note of the report on the upgrade of the reactor's beam line 7A with two bent neutron guides and recommended that the installation

of the neutron guide and of the chopper system at beam line 7A should be completed before the start-up of the reactor.

The PAC considered a proposal by FLNP on the development of a specialized neutron diffractometer at the IBR-2 modernized reactor for real-time studies of irreversible processes in condensed matter. The project of such a diffractometer should be worked out and presented at the next PAC meeting.

The PAC appreciated the principles of the user policy of the spectrometer complex of the IBR-2 modernized reactor and considered this activity to be one of the most important not only for FLNP but also for the whole Institute. The PAC also recommended launching of a call for proposals of experiments at the reactor in November 2011.

Noting the report on the concluding theme «Radiation Effects and Physical Basis of Nanotechnology, Radioanalytical and Radioisotope Investigations at the FLNR Accelerators», the PAC appreciated the high quality of the accomplished studies and recommended continuation of these activities in 2012–2014. Concerning the report on the new results obtained in the project «Investigation of the Interaction of Polarized Muons with Matter» (MUON) the PAC noted the high quality of the research in this area and recommended approval of this project.

The PAC reviewed the possibilities of using the Nuclotron-M accelerator complex for medical and radiobiological experiments and recommended continuation of the VBLHEP efforts towards the construction of a special beam channel at the Nuclotron-M for these experiments, in particular the development of technical specifications and logistics.

The PAC appreciated the current status and results of the activities in the field of Grid technologies at JINR and recommended continuation of these activities in close cooperation with Member States.

The PAC heard with interest a report on the recent developments in the educational programme at JINR. It recommended further regular holding of international summer schools and student practical courses at JINR and of scientific schools for teachers of physics at JINR and CERN.

The PAC noted the high quality of the scientific reports presented at the meeting: «Problems of Earth-Based Modeling Human Exposure to Radiation during an Interplanetary Flight» (by V. Petrov), «Studies of Nanostructured Optically Active Materials by Neutron Scattering — Cooperation with Belarus» (by S. Kichanov), «Radiation Stability of Nanocrystalline ZrN Irradiated with 1.2 MeV/amu Xe Ions» (by A. Sohatsky), and «Stochastic Particle Models of Nonequilibrium Statistical Mechanics» (by A. Povolotsky).

The PAC appreciated the topics and scientific directions covered by the 2nd Italy–Russia Round Table at Dubna on «Space Physics and Biology» (19–23 Decem-

ber 2010, Dubna), the International Conference on Theoretical Physics «Dubna-Nano 2010» (5–10 July 2010, Dubna), the all-Russian school for young Russian scientists «Instruments and Methods of Experimental Nuclear Physics. Electronics and Automatics of Experimental Facilities» (11–13 November, 2010) and by the all-Russian school for young researchers «Modern Neutron Diffraction: Fundamental and Applied Researches of Functional and Nanostructured Materials» (25 October–2 November, 2010, Dubna). Further regular holding of these meetings was recommended.

Of the poster presentations by young scientists at this meeting, the poster «A System for Measurement of a Therapeutic Proton Beam Dose Distribution» by A. Agapov was selected as the best poster to be reported at the Scientific Council's session. Two other high-quality posters were noted: «High Pressure Effects on the Crystal and Magnetic Structure of  $\text{Pr}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$ » (by T. Tran) and «Peculiarities of Phase Dynamics of Coupled Josephson Junctions in CCJJ and CCJJ + DC Models» (by I. Rahmonov). The PAC also awarded the winners of the previous poster session.

**The 34th meeting of the Programme Advisory Committee for Nuclear Physics was held on 16–17 June. It was chaired by Professor W. Greiner.**

The Chairperson of the PAC reported on the implementation of the recommendations taken at the previous meeting. JINR Acting Director M. Itkis informed the PAC about the Resolution of the 109th session of the Scientific Council (February 2011) and the decisions of the Committee of Plenipotentiaries (March 2011).

The members of the PAC extended warm congratulations to Professors M. Itkis and Yu. Oganessian on the award of the 2010 State Prize of the Russian Federation in science and technology for the discovery of a new region of stability of superheavy elements. This prestigious award points again to the outstanding achievements of the Flerov Laboratory of Nuclear Reactions in the field of synthesis of superheavy elements.

The PAC heard a progress report on the experimental programme carried out in Phase 1 of the IREN facility and on the plans for the development of the source itself as well as on the experimental and methodological research. The PAC acknowledged as realistic and supported the plans of the Frank Laboratory of Neutron Physics concerning the speed-up in bringing the parameters of the IREN source up to highest possible standards of equivalent facilities in view of the importance of this for the realization of the JINR scientific programme and for attracting specialists from Member States.

The PAC discussed a proposal of the Flerov Laboratory on the synthesis of heavy neutron-rich nuclei formed in low-energy multi-nucleon transfer reactions. The use of this method opens a new field of research in low-energy heavy-ion physics, namely, the production and study of new neutron-rich heavy nuclei playing a

key role in the r-process of nucleosynthesis. The development of an experimental set-up based on the method of stopping reaction fragments in gas and on their subsequent selective resonance laser ionization is assumed. The PAC emphasized that the proposed experimental method is feasible and strongly recommended starting to work on the details of this proposal within the Flerov Laboratory right away.

The PAC heard a report on the status of the GERDA project aimed at the search for the neutrinoless double-beta decay using  $^{76}\text{Ge}$  diodes placed in liquid argon. Following the successful realization of all phases, the expected sensitivity of the GERDA project can reach the region of the Majorana-electron-neutrino mass of about 10 MeV and cover the inverted hierarchy region, which is much below the current experimental level. The GERDA collaboration, with considerable participation of the DLNP team, has finished the installation of the experimental set-up in the deep underground laboratory at LNGS (Italy) and has already started the first commissioning runs. Recognizing the fundamental importance in neutrino physics of searching for the neutrinoless double-beta decay of  $^{76}\text{Ge}$ , the PAC recommended continuation of the GERDA project with high priority.

The PAC heard a status report on the FASA-3 project. In the experiments successfully performed by the FASA collaboration, new data for the properties of the very hot nuclei were obtained. The PAC also heard a report on the progress of the BECQUEREL project for the study of the coherent dissociation of a family of light nuclei. Taking into account that both the FASA-3 and BECQUEREL projects are coming to an end by 2011, the PAC advised their authors to prepare a joint project to be presented at the next PAC meeting.

The PAC highly appreciated the report «New Results of the Synthesis of Element 115 in the Reaction  $^{243}\text{Am} + ^{48}\text{Ca}$ » presented by V. Utyonkov. It congratulated the FLNR staff on the new interesting results concerning the synthesis of element 115 and especially on the observation of the decay chain of the isotope  $^{289}115$  in the  $2n$  channel, confirming the data obtained in the reaction  $^{249}\text{Bk} (^{48}\text{Ca}, 4n) ^{293}117$ .

The PAC heard with interest the report «Massive Neutrinos in Nuclear Processes» presented by F. Šimkovic and strongly recommended supporting this activity.

The PAC heard a report on the development of JINR educational programme and recommended that the JINR Directorate support the advanced training programmes with modern educational and scientific equipment.

The PAC was pleased with the poster presentations by young scientists in the field of nuclear physics research. Two best posters were selected: «Asymmetric Quasi-Fission in Reactions with Heavy Ions» by G. Knyazheva and «Microbial Synthesis of Silver Nanoparticles *Streptomyces glaucus* and *Spirulina platensis*» by I. Zinicovscaia. The PAC recommended

them for presentation at the Scientific Council session in September 2011.

**The 35th meeting of the Programme Advisory Committee for Particle Physics was held on 21–22 June. It was chaired by Professor E. Tomasi-Gustafsson.**

JINR Vice-Director R. Lednický informed the PAC about the Resolution of the 109th session of the JINR Scientific Council (February 2011) and about the decisions of the JINR Committee of Plenipotentiaries (March 2011).

The PAC extended congratulations to Professor V. Matveev on having been elected as Director of JINR, beginning 1 January 2012, and to Professors M. Itkis and Yu. Oganessian on the award of the 2010 State Prize of the Russian Federation in science and technology for the discovery of a new region of stability of superheavy elements.

The PAC took note of the report on the status of the Nuclotron–NICA project, and appreciated the active progress in designing and developing elements and prototypes of the NICA complex, in particular the successful construction and tests of the superconducting magnet prototypes, the progress in constructing the ion and polarized particle sources as well as in designing the collider lattice. The PAC welcomed the productive cooperation with IHEP (Protvino), the State Nuclear Centre (Sarov), the Budker INP (Novosibirsk), the All-Russian Electrotechnical Institute (Moscow), the State Specialized Design Institute (Moscow), as well as with CERN, institutes in the USA (FNAL, BNL) and Germany (GSI, IKP FZJ). The PAC concurred with the recommendations of the NICA Machine Advisory Committee taken at its meeting on 7 June 2011 and repeated its former recommendation on an international call for proposals concerning the fixed target experiment at the Nuclotron.

The PAC was informed about the ongoing work to prepare the NICA White Paper dedicated to the research programme of the NICA project. It was pleased to note the broad international involvement in the preparation of this document, in which a new editorial section was added, describing the main physical phenomena and the main parameters of the NICA facility including Nuclotron–NICA extracted beams.

The PAC took note of the report on the status of the MPD project. It appreciated the significant progress achieved in designing the MPD detector, in developing new technologies for its elements, and in simulation and feasibility studies. The beginning of prototyping of the MPD subsystems was also noted.

The PAC noted with interest the research programme to be performed by using the Nuclotron extracted beams and endorsed this programme, considering its realization in the announced terms to be extremely important. Taking into account the intensive schedule for the commissioning of the experimental set-



ups on the Nuclotron extracted beams, the PAC recommended that the project to study the hot dense baryonic matter be presented at its next meeting.

The PAC considered the proposal concerning participation of the JINR groups in the NA61/NA49 project at CERN and appreciated the results obtained by this collaboration in the field of heavy-ion physics as well as for neutrino and cosmology interest. However, in view of the important results which are foreseen in the future, the PAC recommended the unification of the two JINR groups which should be reinforced by young scientists and PhD students. Therefore, the PAC looks forward to the implementation of this recommendation and to the presentation of this project at its next meeting before final approval.

The PAC took note of the reports on the D0 and CDF projects, noted the active participation of the JINR groups in these projects and recommended their extensions until the end of 2014, with first priority. The PAC considered the reports on the TUS and Daya Bay projects, recognized the importance of these activities and recommended extension of JINR's participation in these projects until the end of 2014, with first priority.

The PAC took note of the reports on the scientific results of the CMS, ATLAS, and ALICE experiments. It emphasized the scientific significance of the results being obtained with the active participation of JINR physicists and encouraged the groups to strengthen their efforts in the data analysis and in the presentation of the results at international conferences. The PAC also requested that future reports should focus on specific contributions and responsibilities of the JINR groups participating in these experiments and include in particular: a list of talks given at international conferences, a list of analysis notes submitted to the collaboration, a list of PhD students, and a list of management duties and conveners of data calibration and analysis groups.

The PAC took note of the written report on the THERMALIZATION project. It appreciated the physics results in studying the multiple particle production processes performed by the SVD-2 collaboration in  $pp$  interactions with high multiplicity, and recommended continuation of this activity under theme «Strangeness in Hadronic Matter and Study of Inelastic Reactions near Kinematical Borders».

The PAC took note of the written report on the NA49, highly appreciated the important scientific results on hadron production obtained by the NA49 collaboration and by the NA49 TOF-Dubna, in particular, and recommended the closure of this project.

The PAC took note of the written report on the BECQUEREL project, noted a number of important results obtained in studying the peripheral fragmentation of light nuclei in nuclear emulsions and recommended continuation of this activity under theme «Research on Relativistic Heavy and Light Ion Physics. Experiments at the Nuclotron».

The PAC took note of the written report on the theme «Physics and Engineering of Feedback Systems in Synchrotron». Within the framework of this activity, all the systems for the LHC Damper were designed and constructed, and proved very reliable since installation for the initial start-up of the LHC machine. The PAC highly appreciated the results of this successful activity, which received the JINR First Prize in 2010, and recommended its closure due to the achievement of the goals of this project.

The PAC heard with interest the scientific reports presented at the meeting: «Muon g-2: Current Status» by A. Dorokhov and «Experimental Study of Strange Matter Production in Heavy-Ion Collisions at the Nuclotron» by V. Ladygin. It invited V. Ladygin to present a proposal at the next meeting.

The PAC noted with interest the poster presentations in particle physics presented by young scientists. It selected the poster «Design of the Nuclotron Booster in the NICA Project» presented by A. Tuzikov to be reported at the Scientific Council session in September 2011.

**The 34th meeting of the Programme Advisory Committee for Condensed Matter Physics was held on 27–28 June. It was chaired by Professor V. Kantser.**

The Chairperson of the PAC welcomed the PAC members, in particular the new member A. Steuwer, and presented a short overview of the PAC report delivered at the session of the JINR Scientific Council in February 2011 and information about the implementation of the recommendations of the previous PAC meeting.

The PAC extended congratulations to Professors M. Itkis and Yu. Oganessian on the award of the 2010 State Prize of the Russian Federation in science and technology for the discovery of a new region of stability of superheavy elements.

JINR Acting Director M. Itkis informed the PAC on the Resolution of the 109th session of the JINR Scientific Council (February 2011) and the decisions of the JINR Committee of Plenipotentiaries (March 2011). The PAC was pleased to note that most of the recommendations of the previous PAC meeting concerning JINR research in the areas of condensed matter physics had been accepted by the JINR Scientific Council and Directorate.

The PAC highly appreciated the progress of work at the IBR-2 modernized reactor. It emphasized that all the equipment of the reactor should be ready by the end of 2011 and recommended concentrating efforts and revealing the best set of parameters for the cryogenic moderator at the experimental stand, so that it could be possible to install the cryogenic moderator for neutron channels 7–11.

The PAC noted the efforts being taken for the modernization of the first TOF base of the neutron inelastic scattering spectrometer DIN-2PI and the arrangement of the multilayer mirror beam concentrator. It recom-

mended finding the possibility for modernization of the measuring module of this spectrometer.

The PAC was informed about the progress in constructing the DN-6 diffractometer. It appreciated the activities in the realization of this first-priority task, which is under way according to schedule. It also considered the completion of the basic configuration of the DN-6 by the end of 2011 to be one of the major tasks of the development of the reactor spectrometer complex.

The PAC discussed the project of a new specialized neutron diffractometer designed for real-time *in situ* studies of irreversible processes in condensed matter (RTD Diffractometer). The construction of such a diffractometer is important from the point of view of the present-day trends in the use of neutron scattering. The PAC recommended approval of the RTD Diffractometer project for implementation in 2012–2015 with first priority and corresponding financial assistance from the JINR Directorate for instrumentation development, within the framework of the theme «Investigations of Nanosystems and Novel Materials by Neutron Scattering Methods».

The PAC heard a report on the concluding theme «Novel Development and Creation of Equipment for the IBR-2M Spectrometer Complex». It was pleased to note that all planned operations had been completed, and recommended extension of this theme until the end of 2014.

The PAC took note of the report on the concluding theme «Investigations of Nanosystems and Novel Materials by Neutron Scattering Methods». Appreciating the high quality of the obtained scientific results and the broad cooperation with the JINR Member States in the realization of this theme, the PAC recommended continuation of this theme until the end of 2014. It also strongly recommended continuation of all activities to make the IBR-2 modernized reactor and its instrumentation most powerful and effective for the user community. It noted, however, that the scientific topics of this theme should be more integrated and more focused in order to demonstrate the scientific performance.

The PAC appreciated the high quality of radiobiological and radiation research conducted by LRB under the concluding theme «Research on the Biological Action of Heavy Charged Particles with Different Energy». Regarding this research as very important for addressing the problems of space radiobiology, radiation medicine, and radiation protection of JINR's basic facilities and the environment, it recommended extension of this theme until the end of 2014.

The PAC took note of the proposal for the opening of a new theme «Nonlinear Optical Spectroscopy in Condensed Matter Studies. Biomedical Applications», related to the laser confocal scanning CARS microscopy. The PAC regards CARS microscopy as

complementary to existing methods at JINR and welcomes investigations in this area. However, for taking a recommendation concerning the opening of this theme, the PAC invited the authors of the proposal to present, at the next meeting, the detailed scientific programme and the financial plan of its realization.

The PAC discussed the general development of condensed matter science and related infrastructure. It noted that the scientific topics should be better focused in order to demonstrate the strengths of JINR in-house research; they should also be targeted at the problems faced by society (energy, health, environment). Existing links with universities, research institutes and industry have to be strengthened to attract innovative R&D. The PAC also noted that special efforts should be taken to improve the infrastructure and to deploy the user programme.

The PAC heard the following scientific reports: «Application of Inelastic Neutron Scattering Spectroscopy and Molecular Modeling for Condensed Matter Studies» by A. Pawlukojć, «Specificity of the Field Emission from Carbon Nanostructures» by V. Katkov, «Experience in Proton Therapy at the JINR DLNP» by E. Luchin, and «Construction of Nanoporous Structures for Solid-State Hydrogen Storage» by A. Guglya. The high quality of the performed studies was noted.

The PAC was impressed by the topics covered at the round table «Topical Issues of Radiation Safety of Long-Term Space Flights», dedicated to the 50th anniversary of the first manned space flight (25–26 April 2011, Dubna), and recommended supporting the initiative to establish an inter-institute radiobiological basis at JINR intended for experimental research on the radiation safety of long-term space flights and for fundamental and applied studies in general and space radiobiology. Noting the information on the international conference «Stress and Texture Investigations by Neutron Diffraction» (6–9 June 2011, Dubna) and on the SANS-YuMO User Meeting on the Start-up of Experiments at IBR-2 Modernized Reactor, dedicated to the 75th anniversary of the birth of Yu. Ostanevich (27–30 May 2011, Dubna), the PAC highly appreciated the results of these meetings and recommended its further regular holding.

The PAC was pleased with the poster presentations by FLNP scientists. The poster «Structure Peculiarities of  $\alpha$ -Crystallin Studied by Small-Angle Neutron and X-ray Scattering» by T. Murugova was selected as the best poster at the session. Two other high-quality posters were noted: «The Studies of Structure Aspect of Optical Properties Forming in the Optically Active Nanosystems» by S. Kichanov, and «Structure and Properties of New Analogs of Halogenobismuthate (III) and Halogenoantimonate (III) with Morpholinium Cation» by M. Owczarek.