UNIVERSITY CENTRE

International Student Practices in 2010

The first stage of the annual international summer student practice at JINR has begun in the middle of May 2010 for 15 students from Egypt. Taking into account the wishes of Egyptian colleagues, certain changes have been introduced into the traditional three-week practice programme. Only the acquaintance lectures on the current researches in JINR Laboratories were read, the main part of the practice was devoted to the work on several educational-research projects in three directions: GRID-technologies, the accelerator technique and its applications, neutron physics and usage of neutrons in applied researches.

67 students from Belarus, Bulgaria, Poland, Romania, Serbia, Slovak Republic, Czech Republic came in July for a three-week practice at JINR. The largest delegations came from Czech Republic (21 students) and Poland (20 students). The final stage of the summer practice was organized in September for 29 students from South African Republic.

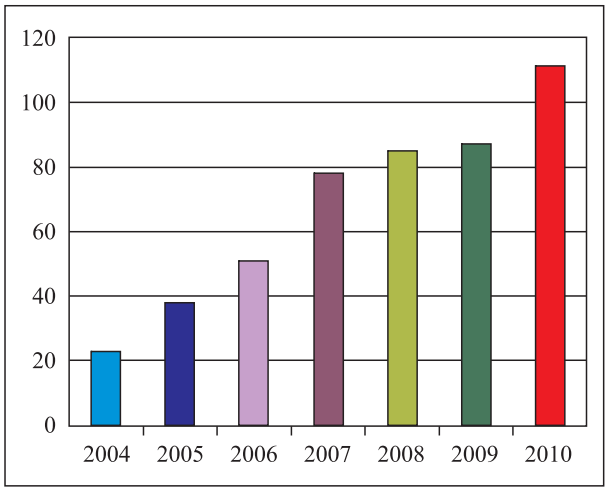

Fig. 1. The number of participants of the international practices over the years

The practices programme includes lectures by leading specialists of the Institute, and also the implementation of the educational-research projects. The implementation of these projects in 2010 was carried out under supervision of the staff of the following Laboratories: LNR — 21 staff members, FLNP — 20, LHEP — 15, LNP — 8, LIT — 5, LTP — 1.

International student practices of 2010 gathered the greatest number of participants (114) from their start in 2004, when 23 students and postgraduate students came for the first practice (Fig. 1).

The Educational Process on the JINR Base

In 2010, at the University Centre there studied 436 students from MSU, NRNU MEPhI, NRU MPhTI, International «Dubna» University, state universities of Voronezh, Erevan, Irkutsk, Kostroma, Samara, Saratov, Tver, Tula, Tomsk Polytechnic University, Ural Technical University, national universities of Kazakhstan, Uzbekistan, Ukraine, university of the Moldova AS.

The UC organized the summer practice for 48 students of state universities of Novgorod, Tver, Tula, Tomsk Polytechnic University, Kazan Technological University, Uzhgorod National University.

On the UC web-site (http://uc.jinr.ru/) there was updated the content of the database of educational courses (Russian and English versions) in the sections: physics of particles and quantum field theory (32 courses); mathematical and statistical physics (18); condensed matter, physics of nanostructures and neutron physics (16); nuclear physics (15); physical equipment (16); informational technologies (15).

In 2010, on the UC web-site in the section «Students», a list of themes for bachelor's and master's students diploma works offered by the scientific staff of LIT, FLNP, LTP, LHEP, LNP, LNR appeared.

JINR Postgraduate Course

In 2010, 71 PhD students from Armenia, Belarus, Moldova, RF, Turkey, Ukraine were studying at the JINR postgraduate course. In 2010, 23 students were accepted for the postgraduate studies at JINR (Fig. 2).

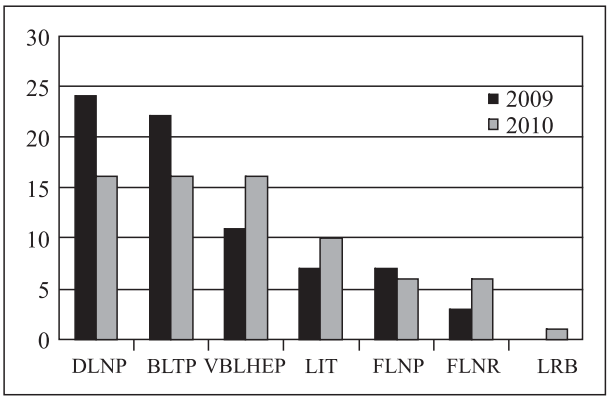

Fig. 2. Distribution of the UC postgraduate students over the JINR laboratories in 2009 and 2010

The distribution of the PhD students over the specialties in 2010 is shown in the Table.

Specialty	Number of postgraduate students in 2010
Physics of atomic nuclei and elementary particles (01.04.16)	25
Theoretical physics (01.04.02)	11
Physics of charged particle beams and accelerator technique (01.04.20)	11
Condensed matter physics (01.04.07)	3
Devices and methods of experimental physics (01.04.01)	5
Mathematical and software support for computers, computational complexes and computer systems (05.13.11)	2
Mathematical modeling, numerical methods and software complexes (05.13.18)	9
Radiobiology (03.00.01)	3
High-Energy Physics (01.04.23)	2

Organization of Visits

On June 18, an excursion to LHEP (S. S. Shimansky) and JINR museum was organized for 40 students of the Moscow City Pedagogical University.

A meeting of the Ukrainian students of 1–3 years of study of the JINR-based department «Fundamental and Applied Problems of the Microworld Physics» of MPhTI with the chief scientific secretary of the Ukrainian National Academy of Sciences Academician A. G. Zagorodny and the JINR Scientific Council member Professor G. M. Zinovjev took place on February 19 in the UC. There were discussed the prospects of educating the Ukrainian students at this department and the possibilities of implementing the diploma works on the base of the NICA-MPD setup, which is under construction in JINR.

On December 14, for the MPhTI students of the first few years of study, there was organized a regular meeting with the staff members of the Institute, as well as the lectures and excursions to LHEP (G. V. Trubnikov), LNP (A. S. Zhemchugov, M. Demichev), LTP (A. V. Bednyakov, S. N. Nedelko).

On December 6, 25 students of higher grades of MEPhI visited the University Center. In the programme, the lectures were read about the Institute and its educational programme (S. Z. Pakuliak), about the activities of the Laboratory of Informational Technologies, and about the development of GRID-technologies at JINR (T. A. Strizh); an excursion to LNR was organized (S. I. Sidorchuk).

Collaboration with the Universities of Poland

Starting from 2008, each year the students of the M. Curie-Sklodovsky University (Lublin, Poland) come to JINR for the practice «Radiational Defence and Nuclear Safety». In April 2010, the staff-members of DRS, LNP, LRB have read the lectures and organized the practical lessons and excursions for the 19 students who has chosen a specialty related to the implementation of nuclear safety.

Ten students of the Mining and Smelting Academy (Krakow, Poland) came in May 2010 to the acquaintance courses on the directions of the JINR researches, including the lectures and excursions to Laboratories held by the staff of the Institute.

These visits were organized in the framework of the «Bogoliubov–Infeld» programme.

Organization of the Scientific Schools for Teachers of Physics at JINR and CERN

In 2010, the JINR UC jointly with the European Organization for Nuclear Research (CERN) participated in the organization of two schools for teachers of physics

from the JINR Member States. The first School was held in Dubna on July 4–10 for 44 teachers from Belarus, Bulgaria, Russia, Ukraine, Czech Republic. In the programme of the school there were lectures of the leading JINR scientists, visits to Laboratories and videoconferences with the European Organization for Nuclear Research. The second School for 40 teachers from Russia and Kazakhstan was held at CERN on October 31 – November 6. The main goal of holding such Schools is the acquaintance of the teachers of general educational institutions of the JINR Member States with the accelerators, physical programmes, intellectual and technical potential of CERN and JINR for supporting and increasing of the interest of school pupils to physics.

Videoconferences

JINR University Centre jointly with the European Organization for Nuclear Research continues to organize and hold videoconferences with the JINR Member-States schools. These activities give a possibility for school pupils to obtain the basic ideas on the modern scientific researches, on the specifics of the modern experiment, on the peculiarities of scientific work, and to involve the school pupils and teachers into the interesting and real scientific work. To the present moment, eight videoconferences were held between CERN and the city schools of Tikhvin of the Leningradsky region, Kislovodsk, Ulianovsk, Ekaterinburg, Dmitrov, Volgograd and Snezhinsk with the total number of participants more than 800 people.

In May, there was a distant practical videoconference «Research of the Cosmic Rays of Extended Atmospheric Showers Using the Distributed Detector "RUSALKA"». The students from schools and lyceums of Dubna, Kislovodsk, and Stavropol took part in this videoconference. The conference programme included a presentation of the educational programmes of the International University «Dubna» and JINR, and also the lecture by G. A. Chelkov «The Cosmic Rays — Discovery, Characteristics, Open Questions, the Relation with Astronomy and Astrophysics». In the practical part of the videoconference the pupils were familiarized with the work of the scientific-educational «Showers of Knowledge» web-site.

The Work with School Pupils and School Teachers

For 30 school pupils of higher grades from Dubna, physics lessons were organized two times per week for preparing to entrance examinations to the physical faculties.

On November 26, excursions to LNR and FLNP were organized for 15 school pupils and their teachers of physics from Dmitrov. 42 school pupils of the 814th Moscow school came to JINR on an acquaintance visit on December 10. They visited LHEP and LNR. S. Z. Pakuliak informed them on the JINR educational programme. For the guests there were also some physical demonstrations in the UC physical practicum laboratory.

On June 22, 40 teachers of RF schools, gathered by MPhTI to the courses of improvement of qualification, came to JINR with the excursion and they have acquainted with the JINR educational activities.

On the Training and Qualification Improvement of the Workers, Engineers and Staff Members

76 staff members of the Institute were educated at the training courses for personnel serving the objects subordinate to Rostechnadzor, and also 17 staff members of the Dubna organizations were educated at the JINR studying station for the professions qualified for Rostechnadzor of RF. In 2010, 30 members of the Institute improved their qualification at different seminars organized by the educational institutions of Moscow and Obninsk. 110 JINR staff members were educated at the courses organized in JINR and attested by the Central Assessment Commission of JINR. In 2010, an attestation was organized in territorial Assessment Commissions of Rostechnadzor and Atomnadzor of RF for 61 chief staff members and specialists of the Institute on normative legal acts and normative-technical documents setting the demands to the industrial safety in different fields of supervision. 32 students of MOPEK and MOATT have gone throught the industrial practice in JINR in 2010.

UC Educational Manuals

In 2010, the following UC manuals were published:

- *A. V. Belushkin.* «Basics of the Research of the Condensed Matter Properties with the Help of the Neutrons Scattering»;
- *N. A. Koltovaya.* «A Manual to Practical Lessons on the Molecular Biology»;
- *V. A. Kalinnikov.* «Development of Windows-Applications with the Help of MFC-Library of Classes in the Microsoft Visual C++ 2008 Programming Environment»;
- *A. P. Isaev.* «Group Theory and Symmetries. Root Systems for Simple Finite-Dimensional Lie Algebras, Exceptional Lie Algebras, and Division Algebras».
- *F. Lehar, E. Strokovsky.* «Phenomenology, Formalism, and Procedure of the Analysis of Nucleon–Nucleon Scattering».