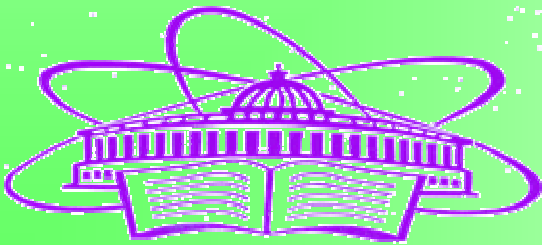


The JINR Educational Programme

S.P.Ivanova

JINR University Centre



JINR Educational Programme



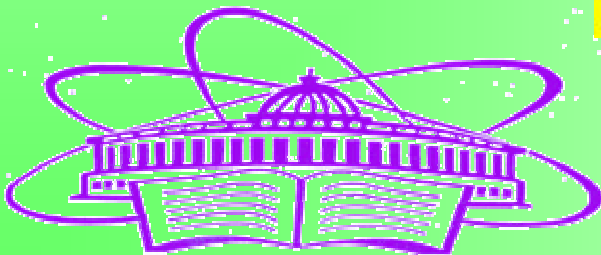
**Training and education
highly skilled young
staff for the Institute
and its Member States**

**Education and
professional training:**

- a)** physicists: students
and postgraduates;
- b)** engineering staff;
- c)** technical staff.

**The outreach
activity of the
Institute**

The main principle of the functioning of the JINR University Centre (the UC) is **the integration** of fundamental education given by the leading institutions of higher physical and mathematical education of Russia and JINR Member States with students' intensive scientific work performed within JINR research teams during graduate studies.



Over 800 graduates and 150 postgraduates completed the UC's programmes

~ **80** students from different institutions of higher education of
JINR Member States

Students of the **4, 5 and 6 years** complete their university
education at the UC in the following areas:

Nuclear physics

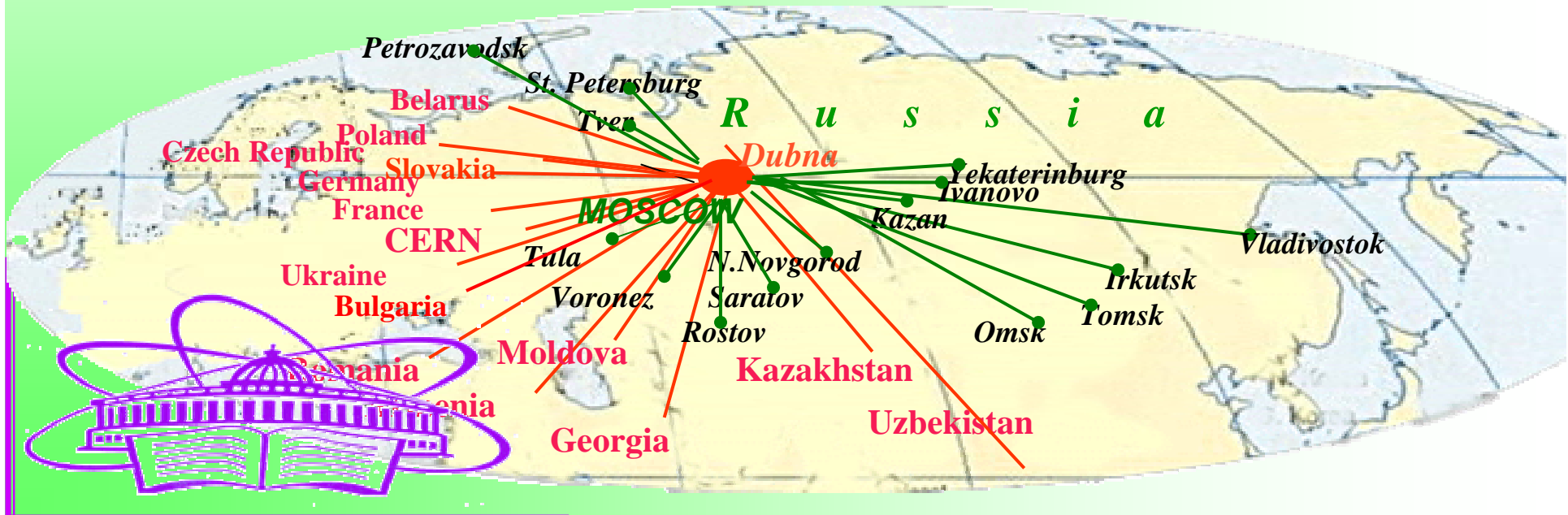
Elementary particle physics

Condensed matter physics

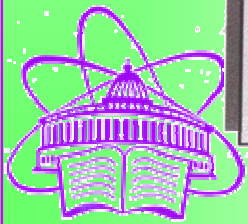
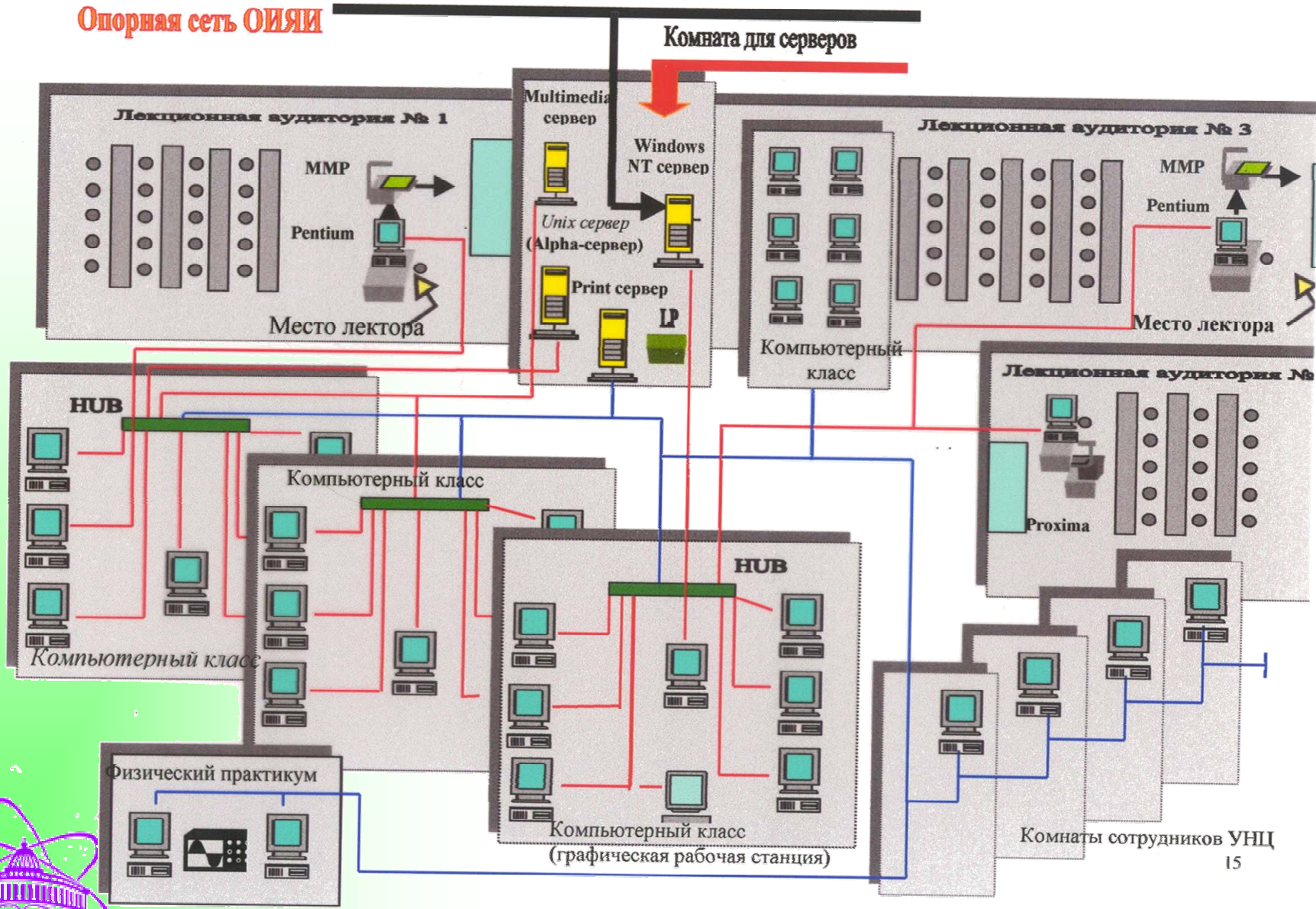
Theoretical physics

Technical physics

Radiobiology



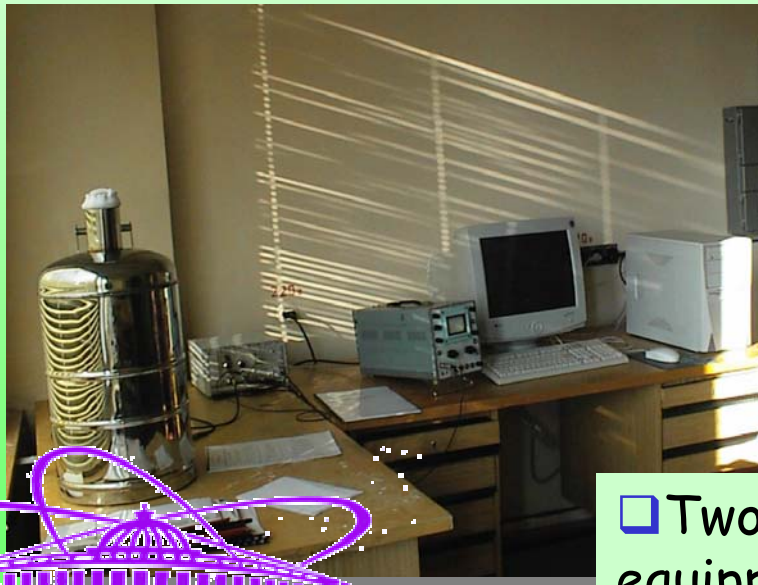
Опорная сеть ОИЯИ



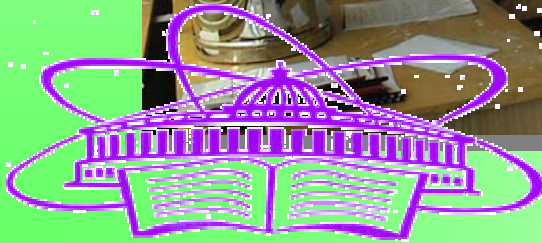


The UC has

- Four computer classrooms (Pentium PC's), one of which is specialized for Grid-technology
- three auditoriums with multimedia-equipped lecturer's places
- two server rooms
 - LINUX server - e-mail, WWW.
 - Windows NT server - classrooms subnet



- Two student laboratory, which has been equipped at the expense of the JINR Directorate grant.





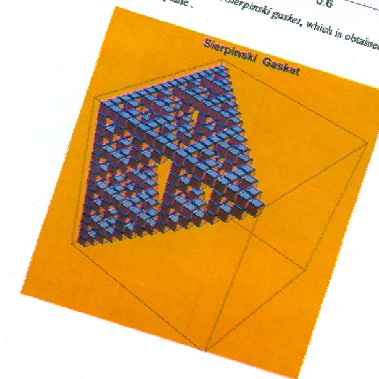
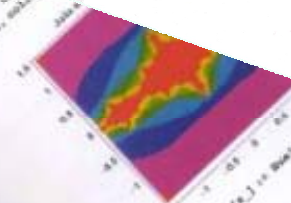
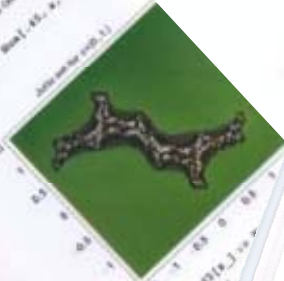
Учебно-методические пособия
Учебно-научного центра ОИЯИ
Дубна

УНЦ-2000-8

R.Kragler*

Mathematica Tutorial

The appearance of the fractal-like structure depends on the values of the control parameters. For example, the structure is more complex for $p=100$ and $q=1$. For $p=100$ and $q=1$, the structure is more complex than for $p=100$ and $q=1$.



14

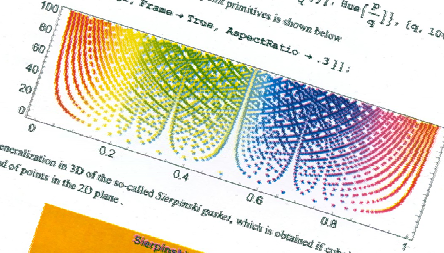
Visualization

It is quite easy to create stunning visual images with *Mathematica*. *Mathematica* includes graphics primitives from which one can build up 2D resp. 3D graphics of any complexity. Here a list of point primitives is generated.

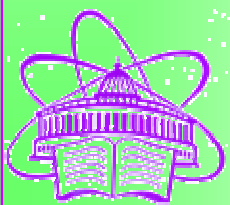
```
qr = Flatten[Table[Point[{p/q, Denominator[p/q]}, {p, q}], {q, 100}, {p, q-1}]];
```

The graphics corresponding to this list of point primitives is shown below

```
Show[Graphics[qr, Frame -> True, AspectRatio -> .3]];
```



This is a generalization in 3D of the so-called Sierpinski gasket, which is obtained if cuboids are substituted in 3D space instead of points in the 2D plane.



The post-graduate student specialization

High energy physics (01.04.23)

Solid state physics (01.04.07)

Physical experimental techniques, instrument physics, and automation of physical research (01.04.01)

Computational mathematics (01.01.07)

Physics of charged particle beams and accelerating techniques
(01.01.20)

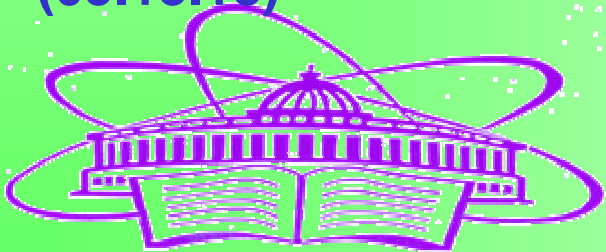
Theoretical physics (01.04.07)

Nuclear and elementary particle physics (01.04.16)

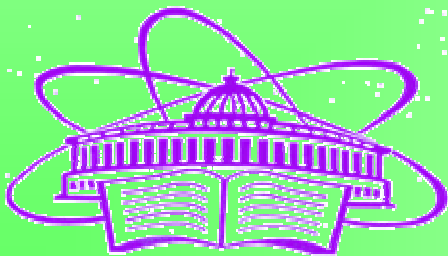
Mathematical and software support of computers, computer complexes, systems, and networks (05.13.11)

Radiobiology (03.00.01)

Mathematical Modeling, Numerical Methods, and Software Complexes
(05.13.18)



In December 1998 ceremonial graduation of the **first post-graduates** of JINR was at University Centre.

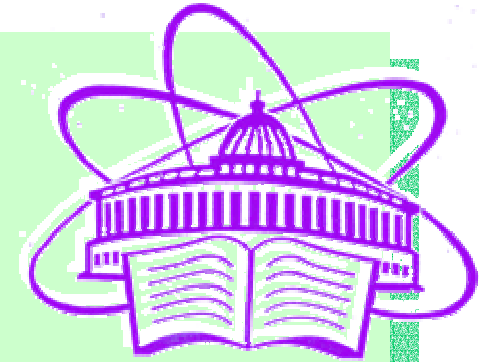


The educational activities:

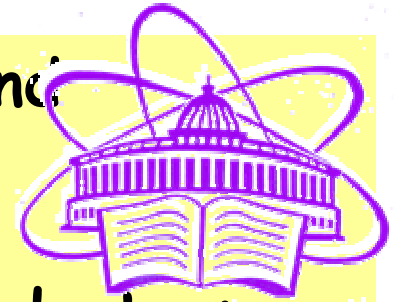
- close and active cooperation with higher education institutions, including;

Moscow State University,
Moscow Engineering Physics Institute,
Moscow Institute of Physics and Technology,
Moscow Institute of Radio Engineering, Electronics,
and Automatics,
Moscow Power Engineering Institute,
Adam Mickiewicz University (Poznan),
Czech Technical University (Prague),
Slovak Technical University (Bratislava),

and other universities of JINR Member States including
Dubna educational institutions

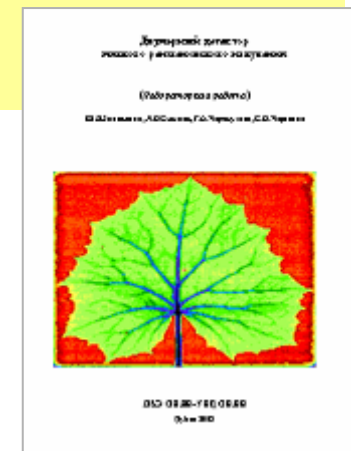


- extension of the list of specializations and departments;
- **Master's degree programmes;**
- **bilateral scientific supervision of postgraduates;**



Example: As soon as this year, a Polish postgraduate is beginning to work with the medical beam group at the Laboratory of Nuclear Problems. Her scientific supervisors will be Polish and JINR scientists

- **establishment of specialized courses - first of all, for JINR Member States (including practical work, coursework, and preparation of diploma theses).**



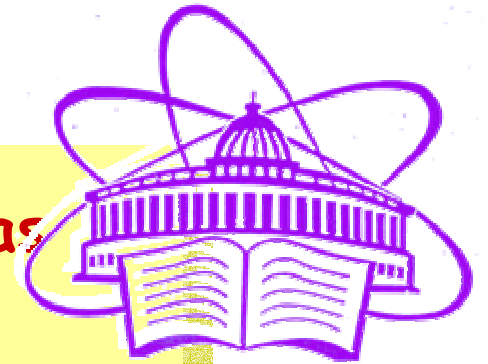
The outreach activity of the Institute has the following aims:

- raising youth's interest in the Institute's activities and in scientific careers.

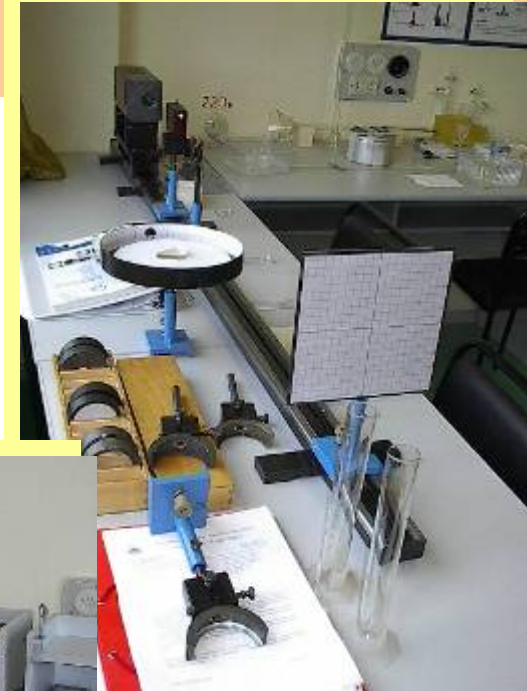
This includes work oriented at secondary school students and teachers of natural sciences.

Eg The work with secondary school students from Dubna, Germany, and Poland

- Preparatory courses for secondary school students
- Practicum in physics for secondary school teachers and students
- Revival of the School of Physics and Mathematics



To attract youth to science, efforts must be made to realize the idea of **continuous education** extending over the secondary school, higher education institution, and research institution. The UC has made the physics practicum for school students.



JINR has agreements on the joint educational activities with many universities of Russia and JINR Member States.

➤ The special **Bogoliubov - Infeld programme** was established in 1998 to support initiatives of **Polish** universities and JINR in the development and realization of educational projects.

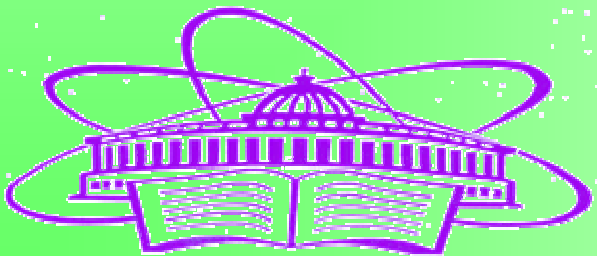
University of Lodz

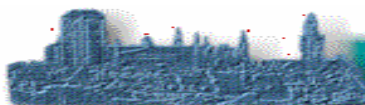
University of Wroclaw

Adam Mickiewicz University (AMU) of Poznan

Jagellonian University of Krakow

Academy of Mining and Metallurgy of Krakow

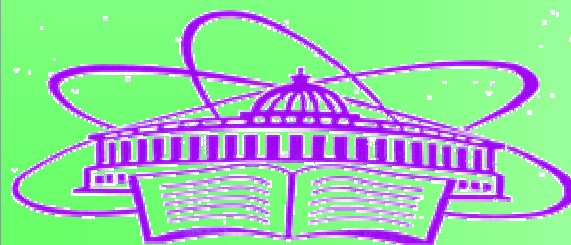
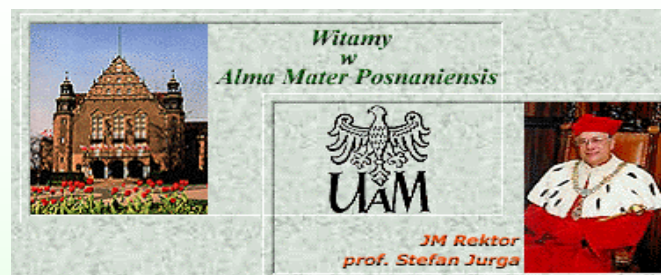




Uniwersytet Gdański



1970 - 2000
30 lat dla Pomorza



Politechnika Gdańska



JINR Today and Tomorrow Poznan, October 7-9, 2002



Petr Benes (Prague)

Spectrometer TGV - data acquisition and data processing software.

Pavel Cermak (Prague)

Distinguishing of electrons and gamma rays in experiment TGV.

Alexander Andreev (JINR) Polarization effects in dinuclear system and description of TKE of fission fragments.

Peter Kolonuto (JINR)

Status of hadron radiotherapy centre in Dubna

Zhanna Mezentseva (JINR)

The Investigation of the Resonance Structure of Fissionable and Constructional Nuclei using the Multiplicity Spectrometry.

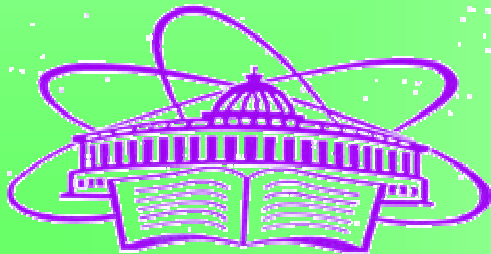
Wojciech Giera (Poznan)

Investigation of the structure of lipid membrane with the help of X-ray diffractometer DRON-4

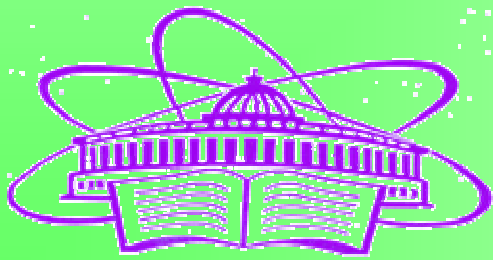
The UC develops new programmes of special training

- 🔥 the **special target training** of students of a JINR Member-States

From autumn 1998, five fifth-year students of the **University of Bratislava** are being trained to become the specialists for the Slovakian cyclotron facility to be built with the JINR's support.

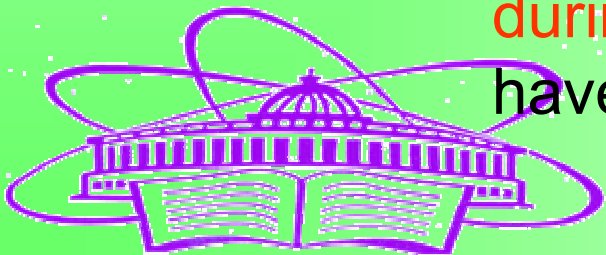


Within the co-operation between the **International Atomic Energy Agency (IAEA) and JINR**, a second IAEA **nine-week regional course** on radiation protection was conducted at the UC, which began on September 13, 1999. The make-up of the participants was determined by IAEA and its Member States and represented 11 countries of the region. More than 130 lectures were presented.





Within the frames of the programme of the German Service of Academic Exchanges (DAAD) “Leonard Euler Scholarships”, a joint project of the UC and the Institute of Theoretical Physics of the University of Giessen (Germany) has been supported in 1999–2000 and 2000–2005. Two UC's post-graduates and one graduate student performing theoretical research in heavy ion physics are paid an additional scholarship during the current academic year and will have a month's practice in Giessen.



JOINT INSTITUTE FOR NUCLEAR RESEARCH
UNIVERSITY CENTRE

Sponsored by UNESCO

**INTERNATIONAL SUMMER STUDENT
SCHOOL ON HIGH ENERGY PHYSICS IN
MEMORY OF BRUNO PONTECORVO**

Dubna, RUSSIA

August 18 - September 1, 1998



Бруно Понтекорво

JOINT INSTITUTE FOR NUCLEAR RESEARCH
UNIVERSITY CENTRE

**II INTERNATIONAL SUMMER STUDENT
SCHOOL ON HIGH ENERGY PHYSICS IN
MEMORY OF BRUNO PONTECORVO**

Alushta, UKRAINE

September 7 - September 18, 2003

32 participants from JINR, the Czech Republic, Germany, Russia, Ukraine, and Yugoslavia.

The lectures were given by 15 prominent scientists of JINR, the Czech Republic, Italy, Japan, Ukraine, and the USA.



1913 - 1993

Joint Institute for Nuclear Research
University Centre

Second International
Summer Student School
on Neutrino Physics
in Memory of Bruno Pontecorvo

7-18 September, 2003
Alushta, Ukraine

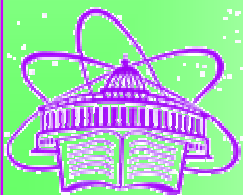
TOPICS

- Phenomenology of neutrino and lepton mixing
- Nature of neutrino masses
- Neutrinos and astrophysics
- Neutrinos from the Sun
- Atmospheric neutrinos
- Long-baseline experiments with neutrinos
- Neutrinoless double beta decay
- Direct measurements of neutrino mass in tritium decay
- Neutrino factories
- Life of Bruno Pontecorvo

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- A. Zagorodny (Ukraine)
- K. Kostenko (Ukraine)
- S. Negovetov (JINR)
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- T. Yudina (JINR)

A request for registration should be sent to the School secretaries:
Mr. Mikhail Zhabitsky and Mrs. Elena Russakovich
University Centre
Joint Institute for Nuclear Research
141980 Dubna, Moscow Region, Russia
Phone/fax (7 09621) 65089/65851
E-mail: zhabitsk@nusun.jinr.ru
rusakovich@jinr.ru
<http://uc.jinr.ru/iss2003/>



<http://uc.jinr.ru/iss2003/>

Topics

Phenomenology of neutrino and lepton mixing

Nature of neutrino masses

Neutrinos and astrophysics

Neutrinos from the Sun

Atmospheric neutrinos

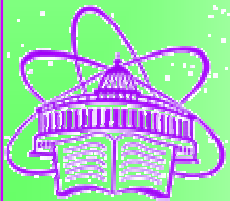
Long-baseline experiments with neutrinos

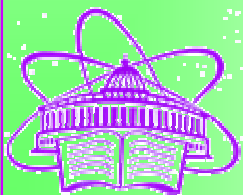
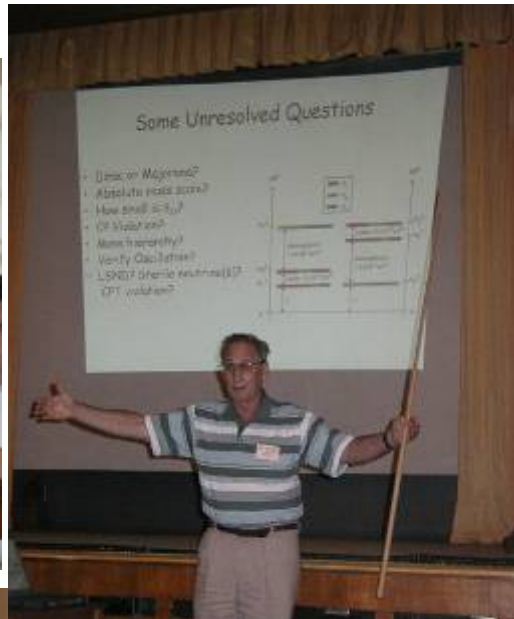
Neutrinoless double beta decay

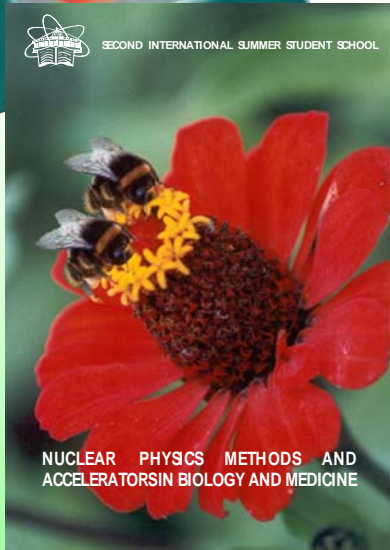
Direct measurements of neutrino mass in tritium decay


Neutrino factories

Life of Bruno Pontecorvo








 Joint Institute for Nuclear Research, University Centre
INTERNATIONAL SUMMER STUDENT SCHOOL
 June 27 – July 11, 2001
 Ratmino near Dubna

NUCLEAR PHYSICS METHODS AND ACCELERATORS IN BIOLOGY AND MEDICINE

■ Nuclear Medicine

Joint Institute for Nuclear Research, University Centre
 Adam Mickiewicz University, Poznan, Poland
SECOND INTERNATIONAL SUMMER STUDENT SCHOOL

19–30 June, 2003
 Poznan, Poland

NUCLEAR PHYSICS METHODS AND ACCELERATORS IN BIOLOGY AND MEDICINE

TOPICS
 Nuclear Medicine
 Radiation Physics in Medicine
 Fundamentals of Ionizing Radiation Dosimetry and Radiobiology
 Accelerator Complexes in Medicine
 Electron, Photon, and Hadron Radiotherapy
 Modern Imaging Technologies for Medicine
 Ionizing Radiation in Medicine and Other Applied Fields

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Supported by
 JINR's Programme "Bogoliubov-Infeld", Czech Technical University,
 Russian Federal Programme "Integration"

Radiation Dosimetry
 Electron, Photon
 Modern Imaging Technologies for Medicine

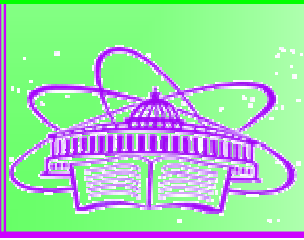


Ministry of Education, Russian Federal Programme "Integration",
 Ministry of Science, Czech Technical University,
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 University Centre, Joint Institute for Nuclear Research, 141980 Dubna, Moscow Region, Russia
 Fax/Phone: (7 09621) 65851/65089, E-mail: jadna@uc.jinr.ru
 Adam Mickiewicz University, Faculty of Physics, Umultowska 85, 61-614 Poznan, Poland
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Informal activities

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UNIVERSITY CENTRE

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ANNA CINTULOVA

PARTICIPATED IN THE

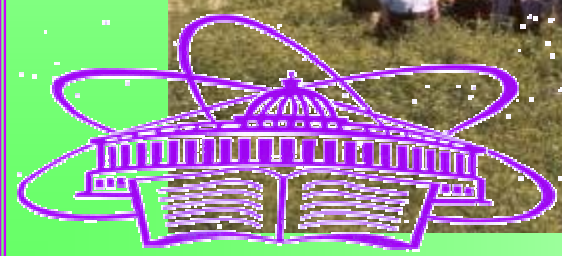
INTERNATIONAL SUMMER STUDENT SCHOOL

"NUCLEAR PHYSICS METHODS AND ACCELERATORS
IN BIOLOGY AND MEDICINE"

Hold in Dubna near DUBNA
June 27 - July 11, 2001

Yu. Utyev
IJNR Vice-Director

S. Ivanova
IJNR University Centre Director



Joint Institute for Nuclear Research, University Centre
Adam Mickiewicz University, Poznan, Poland
SECOND INTERNATIONAL SUMMER STUDENT SCHOOL

19-30 June, 2003
Poznan, Poland

NUCLEAR PHYSICS METHODS AND ACCELERATORS IN BIOLOGY AND MEDICINE

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A. Sissakian (JINR)

Supported by
JINR's Programme "Regulation, Safety", Czech Technical University,
Russian Federal Programme "Integration"

For information

University Centre, Joint Institute for Nuclear Research, 141980 Dubna, Moscow Region, Russia
Fax/Phone: (7-09631) 8503168/809, E-mail: julmed@jinr.ru
Adam Mickiewicz University, Faculty of Physics, Umultowska 85, 61-614 Poznan, Poland
Fax/Phone: ++48(61)8257018/8205169, E-mail: nowarock@amu.edu.pl
<http://fac.jinr.ru/SummerSchool/>



Lectures to be delivered by lecturers from Czech Republic

Nuclear Physics Institute Czech Academy of Sciences

Dr. Martin Kropacek, "Routine Production of 2-Deoxy-2-[18F] fluoro-D-glucose for Positron Emission Tomography, Laboratory Equipment and Instrumentation"

Lectures to be delivered by lecturers from JINR

Dr. G.V. Mytsin, "Hadron Therapy Center in Dubna."

Dr. Y.I. Luchin, "Proton conformal radiation therapy and radiosurgery of intracranial targets"

Dr. V. Aleinikov, "Conceptual framework of radiological protection"
"Basic concepts of radiation dosimery"

Lectures to be delivered by lecturers from Russia

Physical Institute, Russian Academy of Sciences

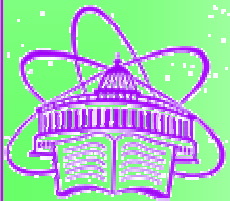
Prof. Dr. A.N. Lebedev, "Non-Traditional X-ray Sources for Medicine and Biology"

St-Petersburg, Institute of Electrophysical Equipment

Dr. S. Naumov, "Radiation treatment systems based on linear electron accelerators"

Dr. V.A. Ovsyannikov, "Treatment of Radiation Damage to Tissues and Organism's Reactions to Radiation Using Infrared Lasers"

"Energy Mechanism of Cancer Development as Common to All the Carcinogenic Factors"



Lectures to be delivered by lecturers from Poland

A. Mickiewicz University, Poznan

Prof. dr hab. Ryszard Krzyminiewski, "Electrical tomography"

Prof. dr hab. Andrzej Dobek UAM, "Telomers"

Dr hab. Ryszard Naskrecki, "Ultrashort laser pulses in chemistry, biology and medicine"

Prof. dr hab. Eugeniusz Szczesniak, "Magnetic Resonance Imaging"

Warsaw University

Dr hab. Zygmunt Szeflinski, "The positron emission tomography in therapy and diagnostics"

Warsaw Technical University

Prof. dr hab. Zbigniew Dunajski, "Magnetocardiography"

Akademia Swietokrzyska, Oncology Centre, Kielce

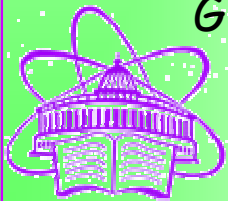
Prof. dr hab. Janusz Braziewicz, "Statistical aspects of positron emission tomography"

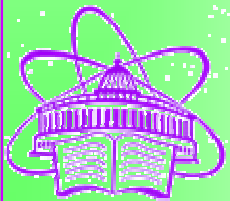
Oncology Centre, Kielce

Dr Pawel Kukolowicz, "The quality control in radiology"

Great Poland Cancer Centre, Poznan

Dr hab. Julian Malicki,
"Physical and Biological Phenomena in Radiotherapy"





Speransky Maxim Boron Neutron Capture Therapy

Lipengolts Alexey Boron neutron capture therapy research at the IRT reactor of MEPI

Harangus Livia PIXE studies of phytopharmaceutic drugs and dental composites

Vasile Gabriel Brachytherapy treatment QC

Czub Joanna Combined PET/CT and PET/MRI imaging

Nagibina Nataliya A method of estimating biominerals composition and structure based on X-ray computer tomographical data

Popov Andrey Computer modeling in medicine physics and its application at proton synchrotron

Tikhonov Nikita Analysis of mathematical models for calculating normal tissues complications

Kubastova Helena Monoclonal antibody TV-20 labeled with ^{125}I via IODO-GEN

Klos Aleksandra Statistic analysis of results from in vivo dosimetry in radiotherapy with the use of electron beams

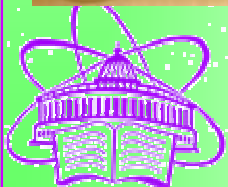
Gorbounov Petr Radiation dose control of S related metastasis with ^{89}Sr therapy

Jouravel Daniil Accelerated ions induce structural mutations: transposon precise excision

Kaminski Kamil How to improve the dose distribution for breast cancer patients treated with external beams

Kurakin Afanasy Application of the positron beams in radiotherapy





Golovin Alexei Development of the new portion-sensitive X-ray detector based on HAMAMATSU's PMT

Dyatlovich Anna Individual ultraviolet dosimeter

Zajdzinska Dorota Presentation of biomedical engineering at Wroclaw Technical University

Zan Anna Radiolabeled liposomes for scintigraphic imaging

Somova Tatyana Application of the dosimetric radiochromic film in radiotherapy

Yudina Anna MRI research at MSU's MRI and Spectroscopy Centre

Volynsky Petr Use of NMR images for obtaining a real-geometry model of a human head for solving the encephalography inverse problem

Alexeeva Polina The behavior of biological cell populations under the action of ionizing radiation

Vorontchev Kirill Gamma probe for field surgery

Zajdzinska Dorota Presentation of biomedical engineering at Wroclaw Technical University



Felinska Katarzyna NMK study of ^{17}O hydroxyprogesterone

Peszynska Magdalena The research of gamma-ray emitters composition in the samples of earth from places of different geographical location

Wasilewski Marcin Saving nuclear reaction networks using integrated mathematical systems. Some applications to neutron induced nucleosynthesis

Turlej Anna, Katarzyna Basta

Parathyroid scintigraphy

Marczakiewicz Katarzyna, Waszak

Edyta Parametrization of bone fracture healing in children on X-ray examination

Szczepaniak Malwina, Jarzebinska

Renata Eye refraction error correction with laser techniques

Mumot Marta Boron neutron capture therapy

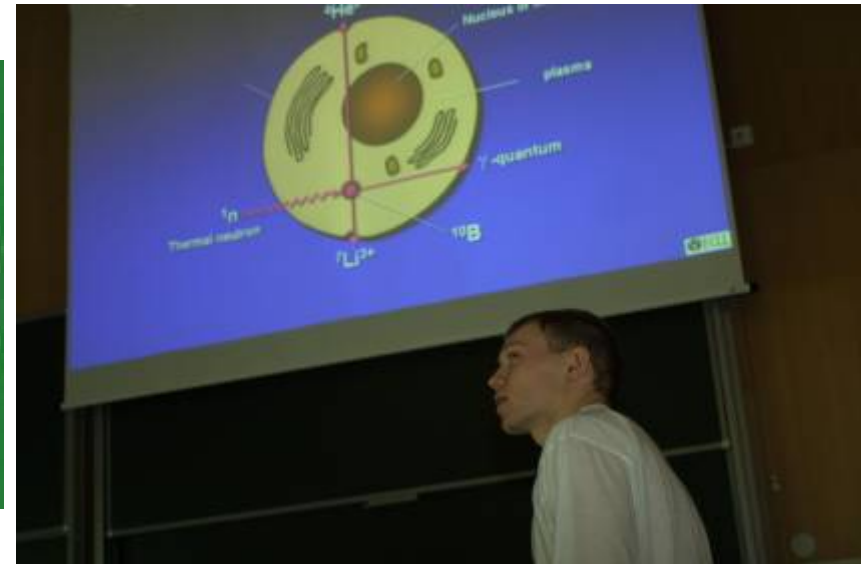
Muszynska Joanna Methodology of the iodine thyroid gland research doing for the diagnostic and therapeutic activities

The winners are:

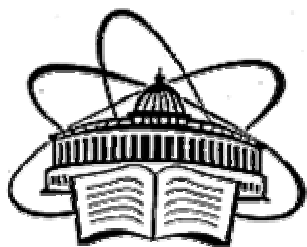
Yudina Anna. MRI research at MSU's MRI and Spectroscopy Centre

Lipengolts Alexey. Boron neutron capture therapy research at the IRT reactor of MEPI

Klos Aleksandra. Statistic analysis of results from in vivo dosimetry in radiotherapy with the use of electron beams



Joint Institute for Nuclear Research
University Centre (Dubna, Russia)
Adam Mickiewicz University (Poznan, Poland)



CERTIFICATE

This is to certify that

MARCIN WASILEWSKI

participated in the

**SECOND INTERNATIONAL SUMMER STUDENT SCHOOL
“NUCLEAR PHYSICS METHODS AND ACCELERATORS
IN BIOLOGY AND MEDICINE”**

Poznan, Poland

June 19 – 30, 2003

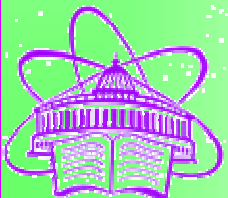
Prof. S. Ivanova
JINR University Centre
School Co-Chairperson

Prof. W. Nawrocik
Adam Mickiewicz University
School Co-Chairperson





On 18 – 30 January, 2004, 12 Polish graduation-class pupils and their teachers were on a visit to the University Centre. They came from the cities of Leszno, Lublin, Poznan, and Swinoujscie. A special educational programme had been prepared for them, which included both lectures on physics and performance of laboratory exercises of the UC's specialized physics practicum for secondary school pupils under the supervision by a UC's lecturer Dr. I.A. Lomachenkov.



Additional Agreements on cooperation in education programmes were concluded:

1. Agreement with Physics Department, Lund University, Sweden, on promoting cooperation in physics research and education.
2. Agreement on cooperation in education programmes between the Czech Technical University, Prague, and JINR.
3. An Agreement is being prepared on cooperation in education programmes between the JINR University Centre and Ukrainian Universities (Kiev, Kharkov).

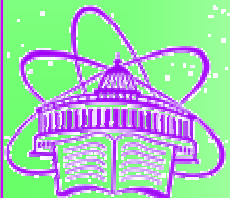
Within the lecture cycle "Modern Issues of Natural Sciences," the following courses were given in March 2004:

Prof. D. Blaschke (BLTP, DIAS-TH)

Contemporary Problems in Quantum Field Theory of Dense Nuclear/ Quark Matter

Prof. F. Dydak (CERN)

Neutrino oscillations: status and prospects



Especially busy are the UC's relations with universities of

Belarus,

Bulgaria,

the Czech Republic,

Poland,

Romania,

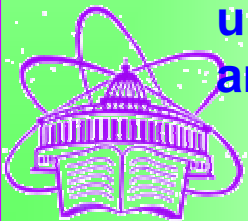
Russia,

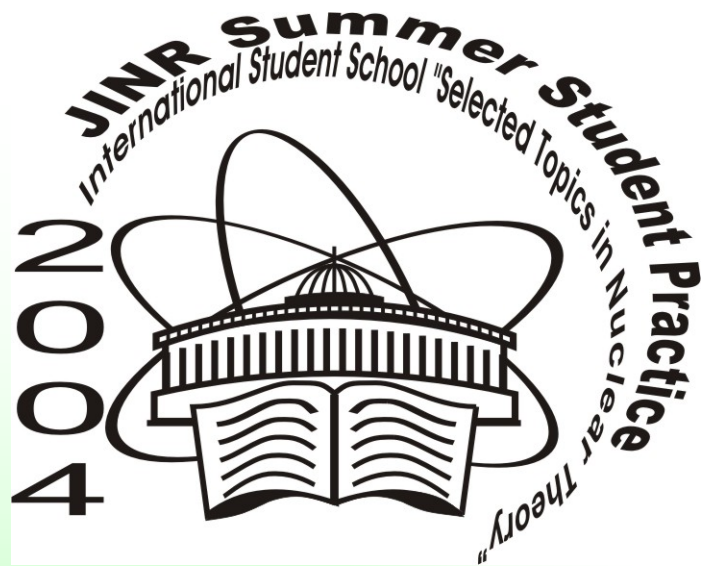
Slovakia,

Ukraine.

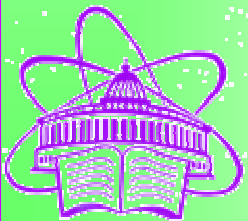
On the basis of the UC, institutes and universities of JINR Member States unite their efforts in education activities.

This year, new agreements have been signed with a number of universities of JINR Member States (Bulgaria, the Czech Republic, and Ukraine).





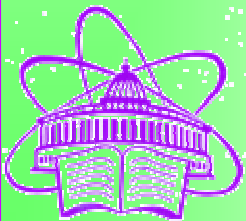
In 2004, the UC hosted a Summer Student Practice in JINR Fields of Research, which was organized jointly with the Czech Technical University in Prague, Adam Mickiewicz University (Poznan, Poland), Moscow State University, and Moscow Engineering Physics Institute.





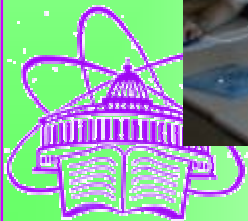
The Practice would have been impossible without support by the Plenipotentiaries of Bulgaria, the Czech Republic, Poland, and Romania. Their financial support was decisive in organizing the Practice.

During a month – from June 29 to July 29 – the Practice was attended by **36** students from Bulgaria **(4)**, the Czech Republic **(9)**, Poland **(11)**, Romania **(4)**, Russia **(2)**, Slovakia **(4)**, and Ukraine **(2)**, who had passed competitive selection.



The main aim that the International Practice organizers set before themselves was active involvement of students in the work of experimental and theoretical research teams at JINR's facilities.

Therefore, the Practice was arranged in such a way that in the morning they attended lectures, and in the afternoon they worked with research teams at JINR's Laboratories.



9 July, Friday

- 9.30 – 13.00 Laboratory practice at the UC
- 13.00 – 15.00 Lunch
- 15.00 – 18.00 Practice at JINR Labs.

<http://uc.jinr.ru/Sum2004.htm>

10 July, Saturday

11 July, Sunday

- Days off

12 July, Monday

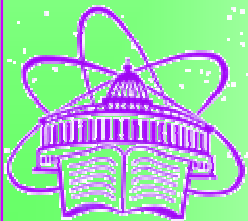
- 9.30 – 11.00 Neutron time-of-flight spectrometry. *L.B. Pikelner*
- 11.30 – 13.00 Neutron optics. *A.I. Frank*
- 13.00 – 15.00 Lunch
- 15.00 – 18.00 Practice at JINR Labs.

13 July, Tuesday

- 9.30 – 11.00 Ultra-cold neutron research. *E.V. Lychagin*
- 11.30 – 13.00 Non – accelerator new physics *A.A. Smolnikov*
- 13.00 – 15.00 Lunch
- 15.00 – 18.00 Practice at JINR Labs.

14 July, Wednesday

- 9.30 – 11.00 Plastic scintillators in modern experimental physics. *I.B. Nemchenok*
- 11.30 – 13.00 GRID. *E. Tikhonenko*
- 13.00 – 15.00 Lunch
- 15.00 – 18.00 Practice at JINR Labs.



Listed here are those responsible for providing the Practice at the Laboratories and immediate supervisors of the students.

FLNP – V.N.Shvetsov and V.I.Furman

A.I.Frank (2 students)

Zh.Mezentseva, N.A.Gundorin (2 students)

M.V.Frontas'eva (5 students)

G.S.Samosvat, S.B.Borzakov (1 student)

DLNP – V.Gorozhankin

A.Inoyatov (2 students)

W.Karch (3 students)

N.Korolev (3 students)

Ya.Yurkovsky (2 students)

FLNR – B.N.Markov

S.Mitrofanov (2 students)

V.Skuratov (1 student)

E.Sokol (3 students)

R.Astabatyan (1 student)

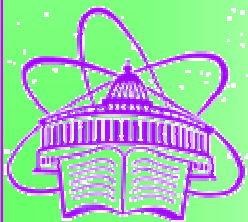
K.Marinova (3 students)

A.Daniel (1 student)

LIT - Gh. Adam (3 students)

N.Gromova (1 student)

BLTP – E.Kuraev (1 student)



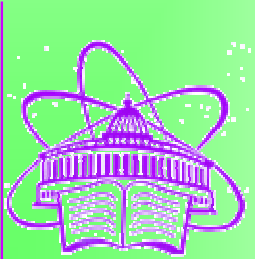
Dzhelepov Laboratory of Nuclear Problems

Experimental study of nuclear multifragmentation at relativistic light ion beams of the JINR Nuclotron. The FAZA multi-detector facility is used (4π -geometry):

- upgrade of the facility and creation of new detector nodes;
- experimental data analysis using a combined model of the process, including the intra-nuclear cascade (INC) and statistical model of multifragmentation (SMM).

Scintillation spectrometry of different types of nuclear radiation.

Low-background semiconductor spectrometry of different types of nuclear radiation.



Frank Laboratory of Neutron Physics

Neutron activation analysis at IBR-2

Preparation of samples; irradiation;
GIS technologies; and γ -spectra analysis.

Study of the n-e interaction.

Methodology of the correlation γ -spectroscopy: experiments at IBR-2.

Delayed neutron research at IBR-2.

Fission physics experiments at IBR-2.

Ultra-cold neutron research.

Flerov Laboratory of Nuclear Reactions

Laser spectroscopy

Study of nuclear reaction

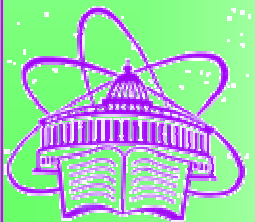
Production of exotic nuclei (Acculina)

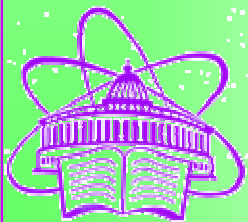
Heavy elements study (Vasilisa)

Laboratory of Information Technology

Various methods of numerical integration and control of special functions

Geant4





Lectures/Lecturers

Non-accelerator new physics. *A.A. Smolnikov (DLNP)*

Nuclear phase transitions in very hot nuclear matter. *V.A. Karnaukhov (DLNP)*

Plastic scintillators in modern experimental physics. *I.B.Nemchenok (DLNP)*

Grid and its application. *O.Smirnova (DLNP/Lund/CERN)*

Neutron activation analysis in Life Science. *M.V. Frontasyeva (FLNP)*

Neutron time-of-flight spectrometry. *L.B. Pikelner (FLNP)*

Introduction to the physics of nuclear fission. *V.I. Furman (FLNP)*

Ultra-cold neutron research. *E.V.Lychagin (FLNP)*

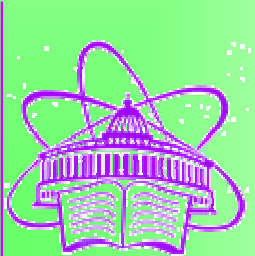
Neutron optics. *A.I. Frank (FLNP)*

Nuclear Physics at radioactive nuclei beams. *Yu.P. Gangrsky (FLNR)*

Grid projects in Russia. *E.A.Tikhonenko (LIT)*

Low background measurements. *I. Stekl (Prague Technical University)*

Double Beta Decay. *F.Simkovic (Comenius University, Bratislava, Slovakia)*



Laboratory practicum

Radiochemistry (two exercises) DLNP

Detectors (two exercises) DLNP

Detectors at the University Center (three exercises)

Excursions

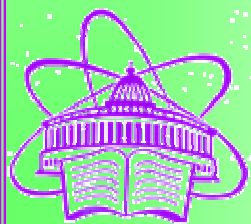
Medical beams (DLNP)

LIT

FLNP

FLNR

Neutrino water detector (MEPhi)





DIAS-TH: Dubna International Advanced School of Theoretical Physics
JOINT INSTITUTE FOR NUCLEAR RESEARCH
The International Student School
SELECTED TOPICS IN NUCLEAR THEORY

Dubna, July 20 - 29, 2004

The Bogolubov Laboratory of Theoretical Physics at the Joint Institute for Nuclear Research organizes the International Student School "Selected Topics in Nuclear Theory". The School program will cover new theoretical development in studies of nuclear structure phenomena from stable nuclei to borders of stability, manifestation of nuclear structure in nucleus-nucleus collisions at different energies, lepton-nucleus reactions, neutrino physics, hypernuclei, dynamics of many-body systems.

Lecturers

Nikolai Antonenko (JINR BLTP, Dubna)
Sergey Ershov (JINR BLTP, Dubna)
Yuri Gaponov (RRC "Kurchatov Institute", Moscow)
Carlos Granja (IEAP CTU, Prague, Czech Republic)
Rostislav Jolos (JINR BLTP, Dubna)
Leonid Kaptari (JINR BLTP, Dubna)
Thomas Kunert (TTP TU, Dresden, Germany)
Vladimir Kuz'min (JINR BLTP, Dubna)
Lubomir Majling (NPI, Rez, Czech Republic)
Valentin Nesterenko (JINR BLTP, Dubna)
Yuri Oganesian (JINR FLNR, Dubna)
Vladimir Plujko (INR, Kiev, Ukraine)
Vecheslav Toneev (JINR BLTP, Dubna)

Supported by

JINR, Bogolubov Laboratory of
Theoretical Physics, RFBR,
Heisenberg-Landau and
Votruba-Sklyashnikov Programs

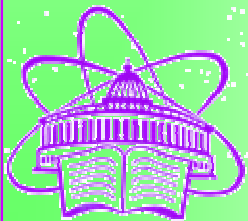
Organizing Committee

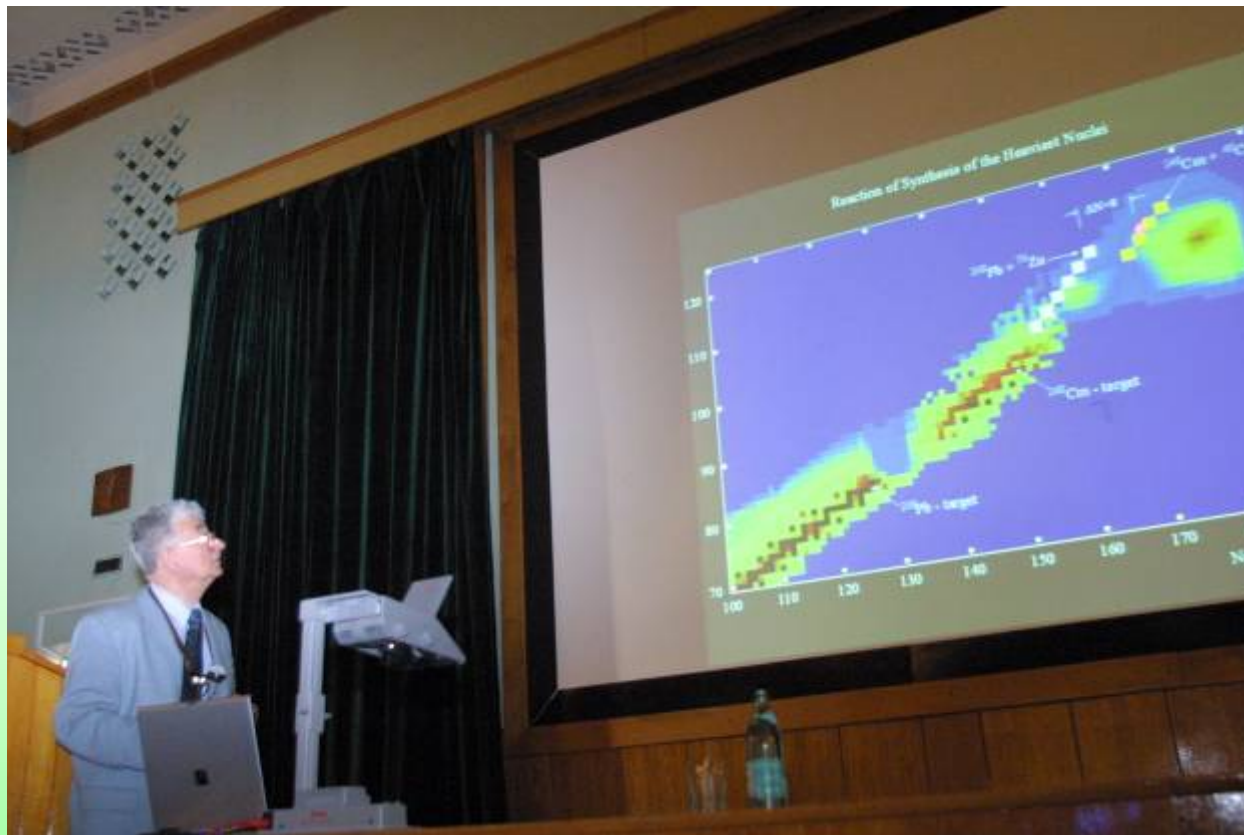
V. Voronov, Dubna, Chairman
A. Dzhioev, Dubna, Sec. secretary
N. Antonenko, Dubna
T. Donakova, Dubna
S. Ivanova, Dubna
R. Jolos, Dubna
E. Kolganova, Dubna
V. Kuz'min, Dubna
T. Sklyarova, Dubna
V. Shilov, Dubna

WWW: <http://thsun1.jinr.ru/~stnp04/>
E-mail: stnp04@thsun1.jinr.ru

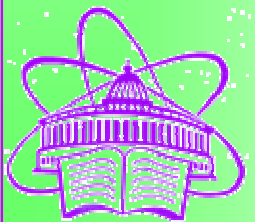
The final part of the Practice was held jointly with the School on theoretical nuclear physics of low and intermediate energies hosted by the Laboratory of Theoretical Physics

(Head of the Organizing Committee: V.V.Voronov)





On July 20 – the day of the School opening – Acad. Yu. Oganessian gave a lecture on superheavy elements.



Program of the School

"Selected Topics in Nuclear Theory"

Prof. R. Jolos (Dubna, JINR BLTP) "Nuclear structure models"

Prof. V. Nesterenko (Dubna, JINR BLTP) "Linear dynamics of many-body systems: nuclei, atomic clusters, Bose-Einstein condensate"

Dr. T. Kunert (Germany, Dresden, TU ITP) "Collision- and laser-induced dynamics of clusters and molecules"

Prof. V. Plujko (Ukraine, Kiev, INR) "Dipole radiative strength functions: from cold to hot nuclei"

Prof. Yu. Gaponov (Moscow, RRC "Kurchatov Institute") "Neutrino physics beginning from beta-decay discovery up to now"

Dr. S. Ershov (Dubna, JINR BLTP) "Halo nuclei: structure and reactions"

Prof. V. Kuz'min (Dubna, JINR BLTP) "Spin-isospin excitations and nuclear muon capture"

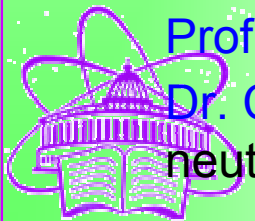
Prof. L. Kaptari (Dubna, JINR BLTP) "High energy scattering of leptons on nuclei"

Prof. L. Majling (Czech Republic, Rez, NPI) "Hypernuclei: yesterday, today and tomorrow"

Dr. N. Antonenko (Dubna, JINR BLTP) "Nucleus-nucleus potential"

Prof. V. Toneev (Dubna, JINR BLTP) "Relativistic heavy ion collisions"

Dr. C. Granja (Czech Republic, Prague, CTU) "Nuclear spectroscopy with neutrons"



**Joint Institute for Nuclear Research
University Centre
Bogoliubov Laboratory of Theoretical Physics**



CERTIFICATE

This is to certify that

Leonid Yuryev

participated in the

Summer Student Practice in JINR Fields of Research

and the

International Student School

"Selected Topics in Nuclear Theory"

Dubna, Russia

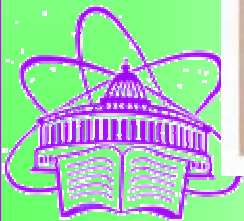
June 29 – July 29, 2004

Prof. S. Ivanova

Prof. V. Voronov

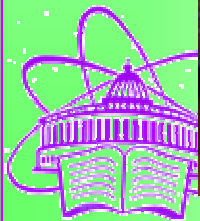
Practice and School Chairpersons

At the joint concluding session of the School and the Practice, some of their participants addressed the audience and expressed the general opinion that such schools and practices are of benefit.

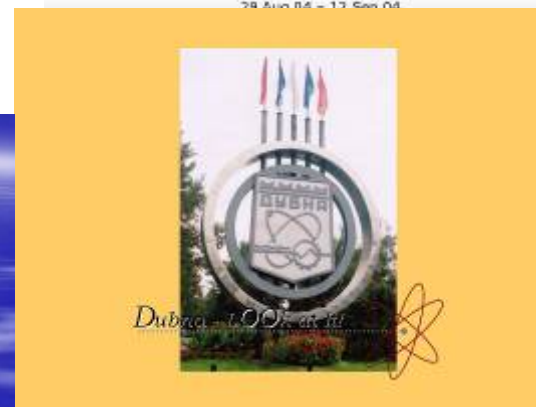
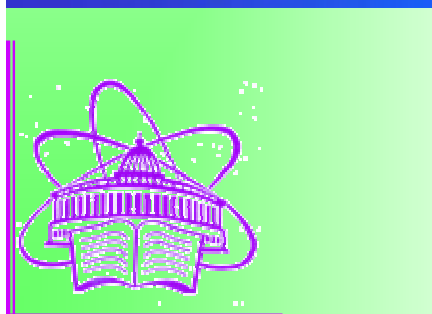
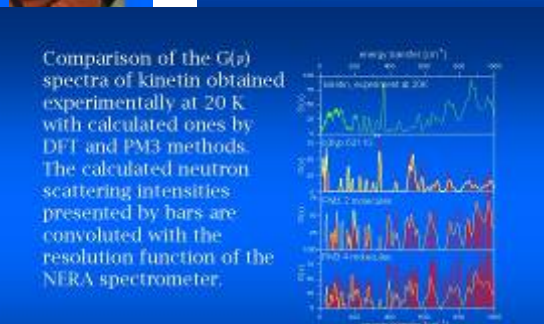
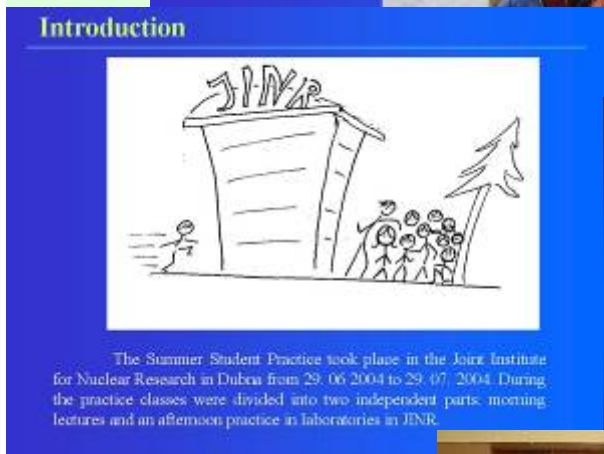
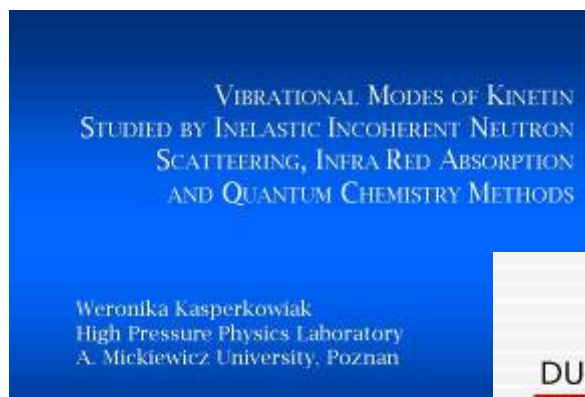


Concluding talk of Tomasz Cybulski

I have an honor to inform you about an idea that has risen in our minds during our wonderful stay at JINR Summer Student Practice and International Student School on Nuclear Theory. We would like to create an organization of friends of JINR and Dubna. We would like to unite all those of us who have already been here and those who are going to come to JINR – who have devoted a part of their life to Dubna. Our purpose will be to cooperate with students of our universities and give them the best information about projects in Dubna, about possibilities of doing here their own research, and to tell them about their opportunities to come here for practice, schools, and conferences. We would like to organize meetings for them presenting JINR's latest research and news, but our main purpose will be to help them to come to Dubna and make great contribution to JINR becoming a great place for young people to do their scientific career and a place where all their expectations will be met.

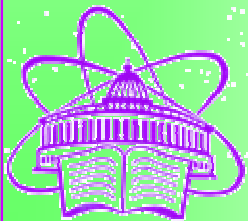


The results of these activities were also evaluated at a seminar in Poznan on October 23, 2004. Students from Poland, attended the Summer Practice at JINR UC presents their results.





It must be noted, that only in year 2004 there are about 90 students from Poland at JINR in the frame of Bogoliubov-Infeld Programme (educational part)





However, they concerned not only the mentioned Practices, but also the Practice that was hosted by the Frank Laboratory of Neutron Physics and received organizational support from the UC. It was attended by students of the Adam Mickiewicz University (Poznan, Poland), Ural Polytechnic Institute (Yekaterinburg, Russia), and Bucharest University (Romania).

PROGRAMME OF STUDENTS' ON-THE-JOB PRACTICE IN USING NEUTRON SCATTERING AND SYNCHROTRON RADIATION (30 AUGUST – 12 SEPTEMBER 2004)

Organizers:

Frank Laboratory of Neutron Physics, University Centre, Adam Mickiewicz University (Poznan, Poland)

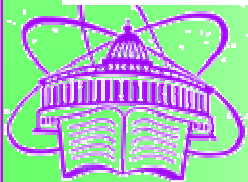
1. Structure and dynamics
2. Small-angle neutron scattering (off-atomic structures)
3. Reflectometry
4. Electrostatic generator EG-5
5. Raman scattering

Excursions:

Installations at the experimental hall of the IBR-2 pulsed reactor

IBR-2 pulsed reactor

Phasotron



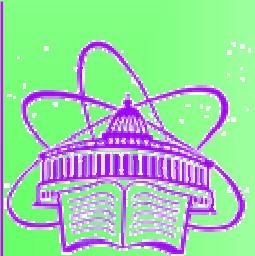
In September 2004, a three-week practice was organized for Romanian students and one week practice for Czech students. It went off very successfully.

Prof.Dr. Anicsoara Constantinescu (Romania):

“ During the weeks of practice, the students visit all the JINR Laboratories.

Each student has the opportunity to discuss in detail with at least one scientist from JINR the problems in which he is interested.

We consider that the present visit at JINR-Dubna was very useful for the scientific growth of the students, for enhancing their knowledge in physics. “



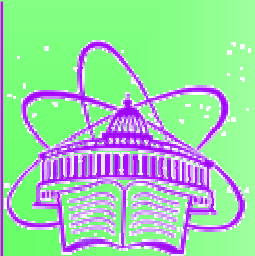
Questionnaire for Students

from Carlos Granja, IEAP CTU Prague :

YOUR IMPRESSION OF THE EXCURSION AND ACTIVITIES REALIZED (WHAT BENEFITS DID YOU OBTAIN FROM THIS EXCURSION?)

WOULD YOU LIKE TO SPEND A SIMILAR OR LONGER PERIOD OF TIME AT JINR IN THE FUTURE? IS YES, FOR HOW LONG AND WHAT WOULD YOU LIKE TO DO?(summer school, laboratory practice/stage, Diploma/Ph.D. thesis, etc.)

WOULD YOU RECOMMEND THIS EXCURSION TO OTHER STUDENTS?



I have seen real research in a real research laboratory. Now I know how some facilities look like and how they work.

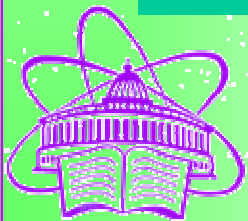
Petra Trnková

Yes, I surely will recommend this excursion to other students, because it is a good experience and I think, that this excursion is necessary for students, who want to study in Dubna for longer time, because they obtain important information about this place and working here, which is very useful and necessary for their longer stays at JINR.

Lenka Trnková

First of all I would like to mention the positive feeling I had when dealing with the staff of the institute. In whatever place we have been, there were very kind people, ready to give us requested information about their business. This is not the case elsewhere!

Štěpán Neliba

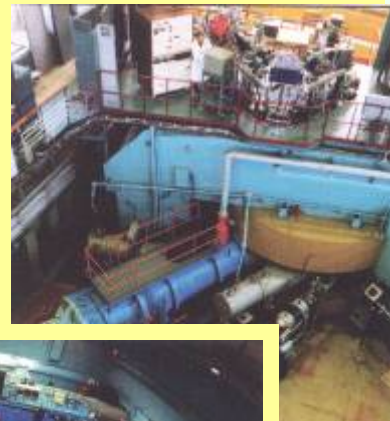
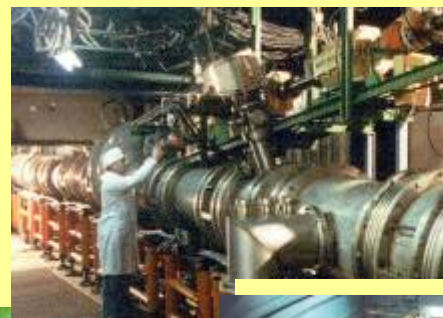


We would like to come back to
Russia...

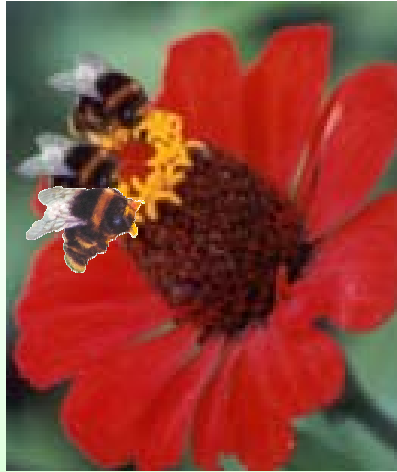


- the Institute's activity coverage for the general public, which may help towards the lobbying of the Institute's interests.

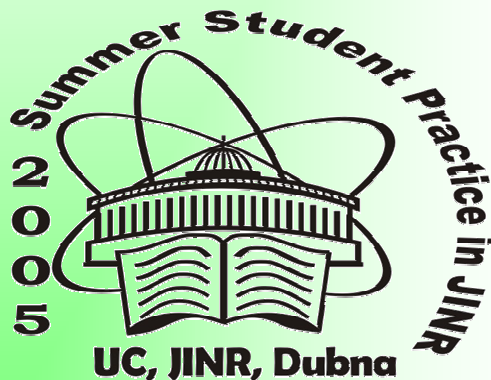
JINR-trip



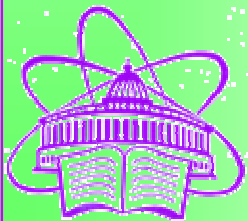
In the year 2005:



30.06 – 11.07 Third International Summer Student School on Nuclear Physics Methods and Accelerators in Biology and Medicine



12.07 – 4.08 Summer Student Practice in JINR Fields of Research



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