



JINR

Training Programmes

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Outline

International Student Practice

Summer Student Programme

More oppotrunities

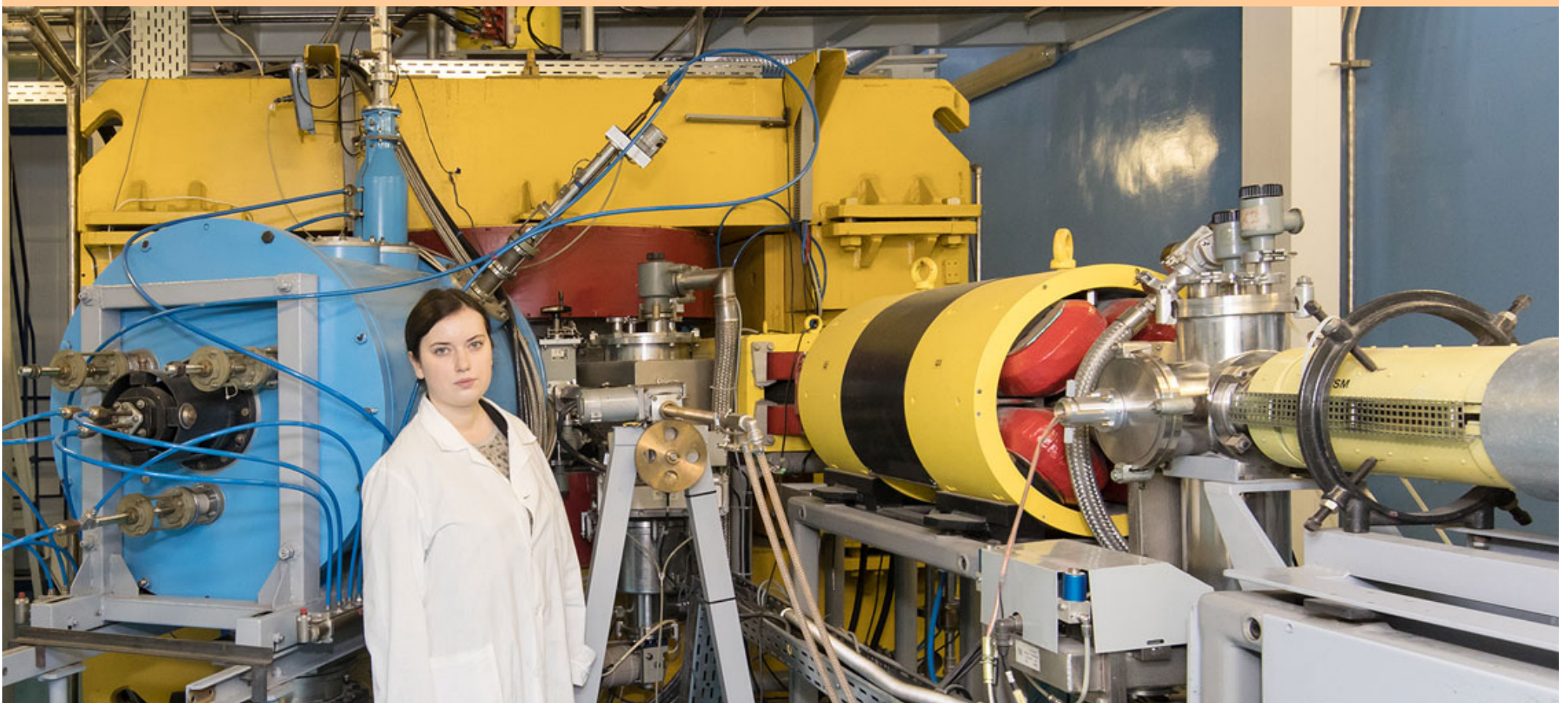
Practice and training for researchers and engineers

JINR outreach programmes

Science brings nations together

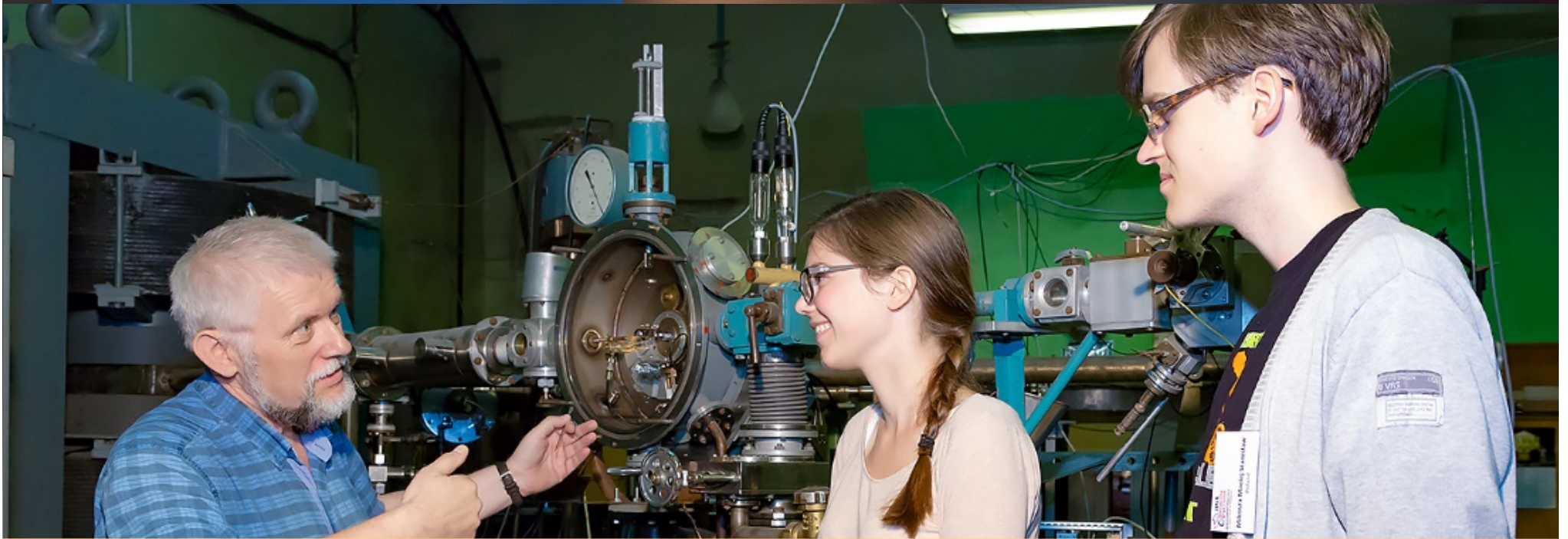
Start your career at JINR

- World-class scientific research
- Wide range of research areas
- Qualified supervision
- Fruitful contacts
- International collaboration
- Variety of training programmes

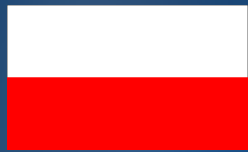
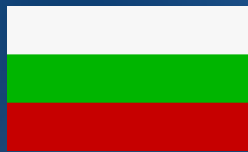


Main goals

- Educate students that can advance in the various nuclear research activities offered by JINR, to the benefit of the JINR Member States
- Integrate young scientists into the international scientific community



International Student Practice at JINR



Since 2018

1st STAGE, May

South Africa

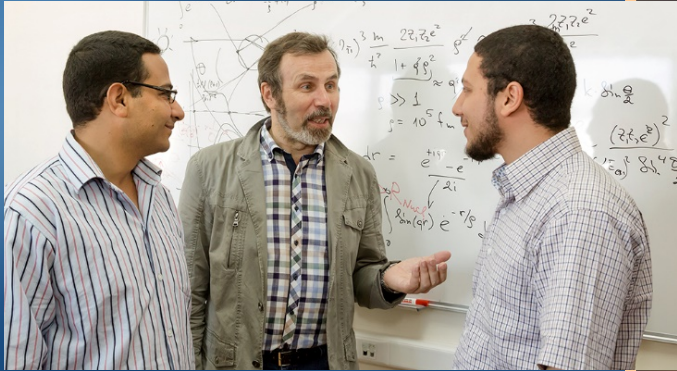
2nd STAGE, July

Bulgaria, Czech Republic, Slovakia,
Poland, Romania, Azerbaijan

3rd STAGE, September

Egypt, Belarus, Cuba, Serbia,
Mongolia

JINR provides



- World-class scientific research
- Wide range of research areas
- Qualified supervision
- Fruitful contacts
- International collaboration
- Variety of training programmes
- Unique location (Dubna)

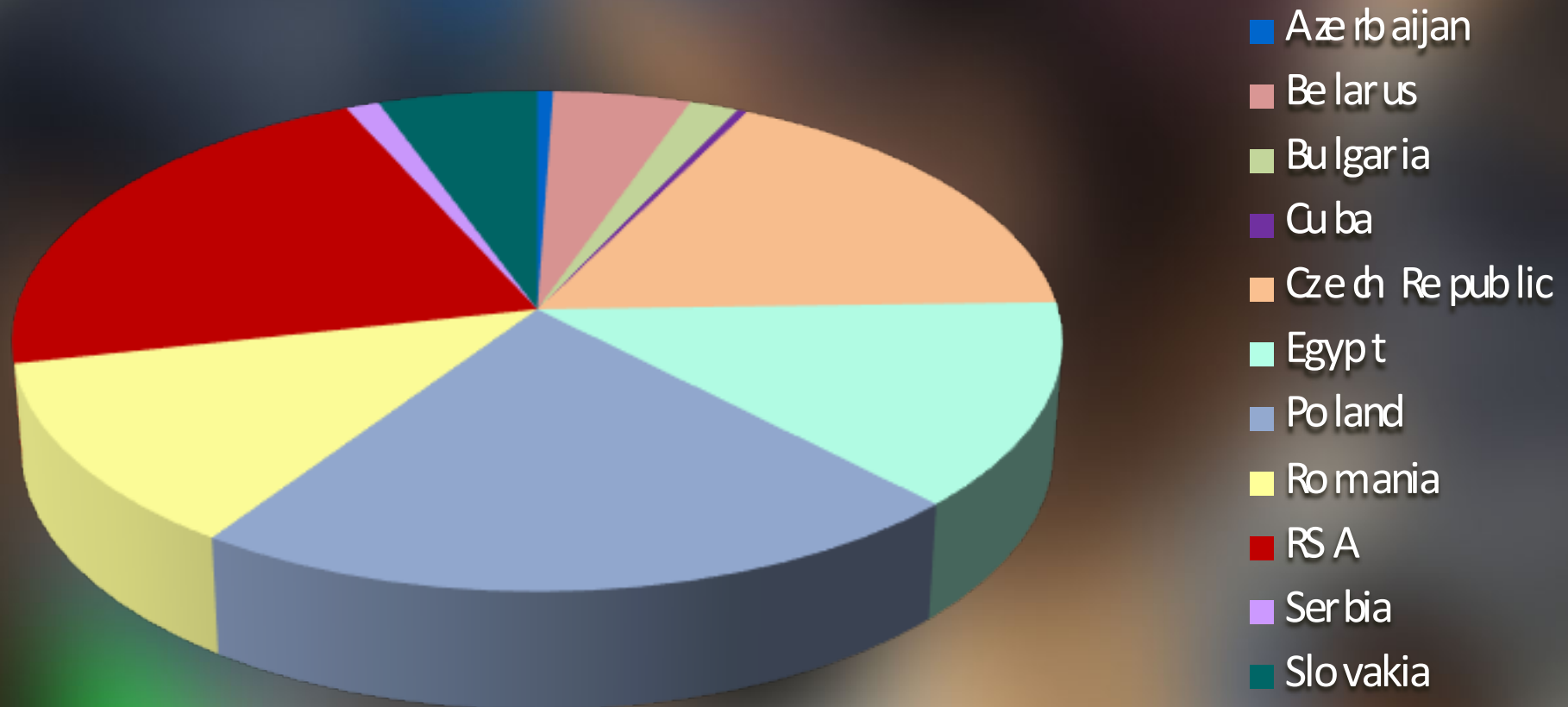
JINR fields of research

- Theoretical physics
- Particle physics
- Relativistic nuclear physics
- Heavy ion physics
- Low and intermediate energy physics
- Nuclear neutron physics
- Condensed matter physics
- Radiation biology and radiobiological investigation
- Information technologies
and modern computational techniques



Attracting YOUTH
to Science

Practice participants representation



Total number of participants since 2004 – **1459**

International Student Practice activities

3 weeks

- Introductory lectures
- Work on the projects in international scientific groups
- Final presentation of the projects



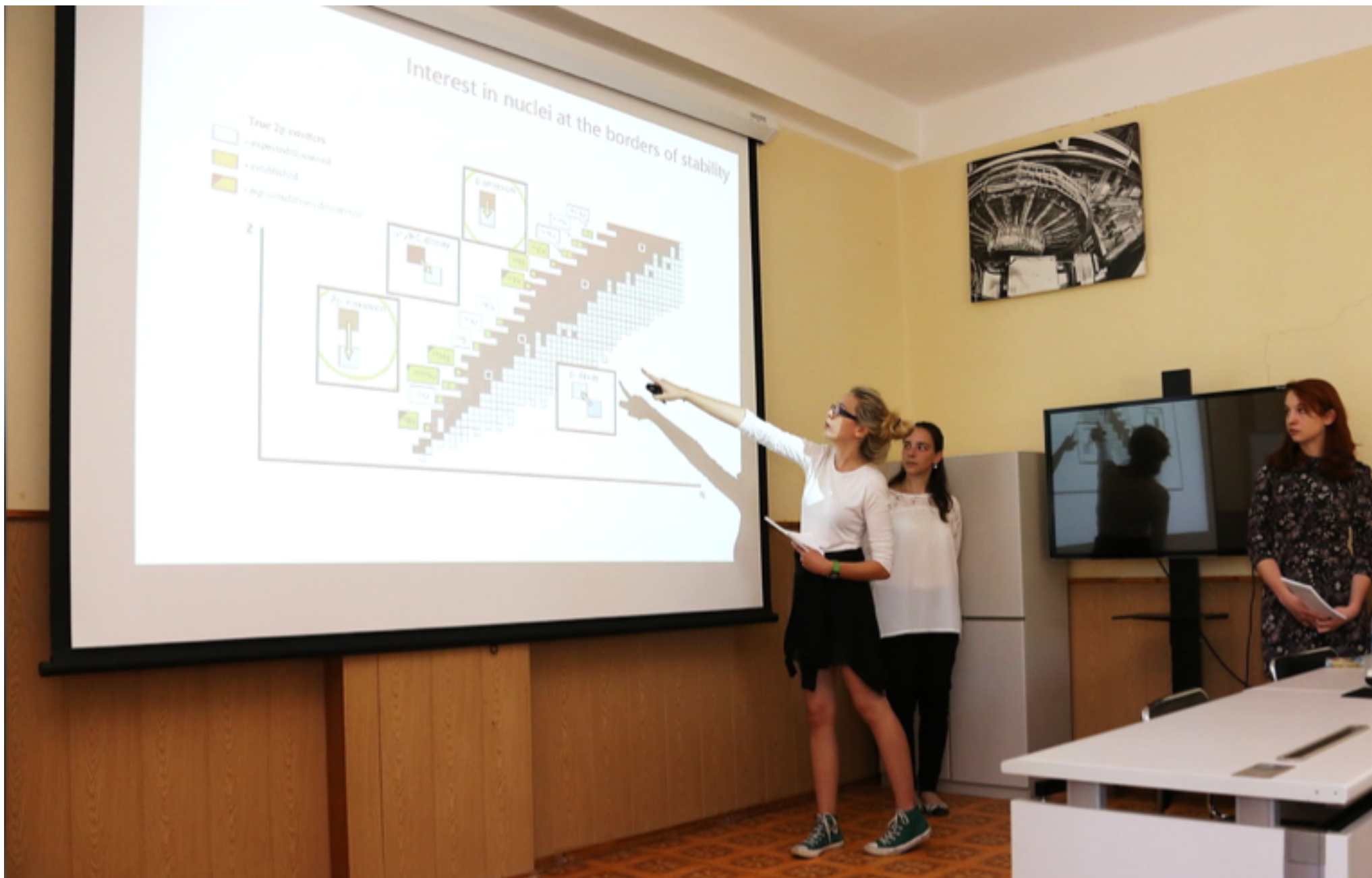
Introductory lectures

Work on the projects



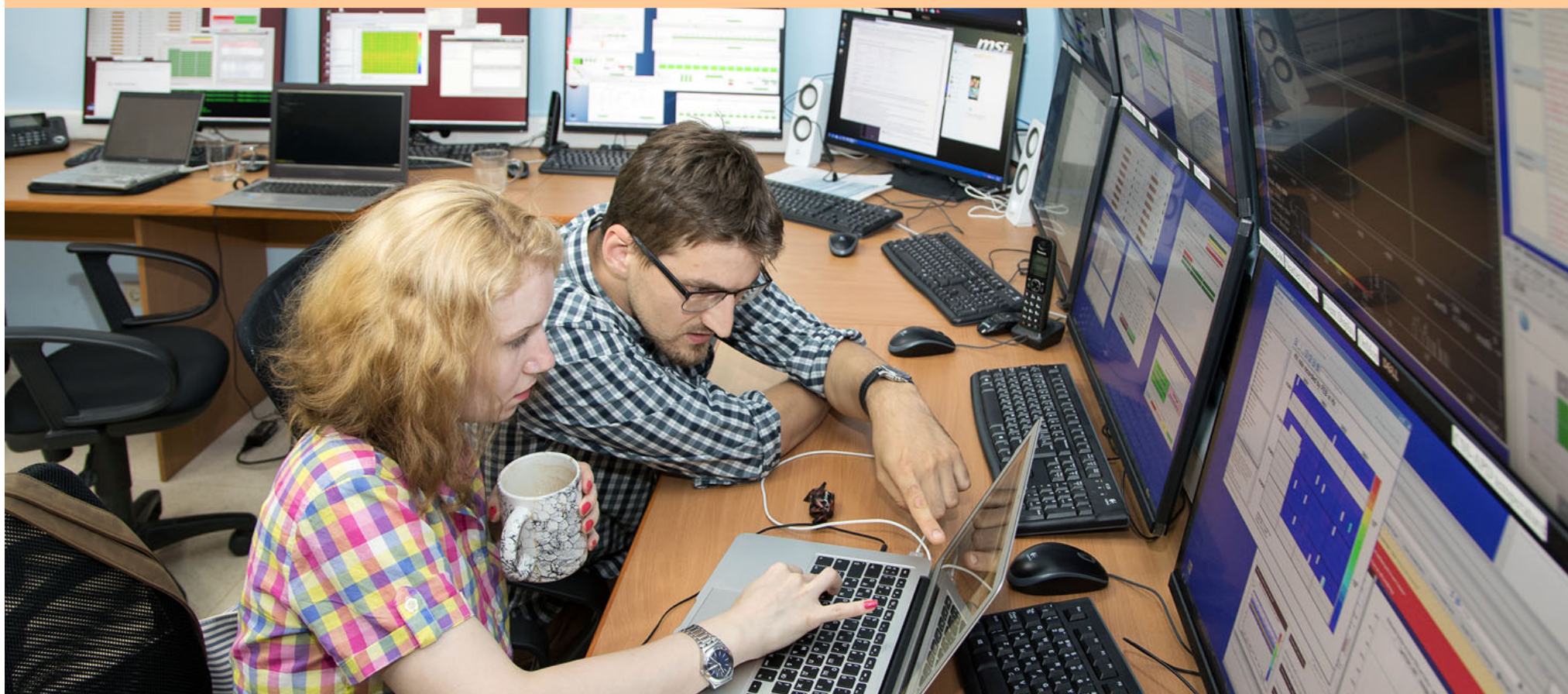
Work on the projects





Final project presentation

Summer Student Programme



Summer Student Programme

Launched in 2014

Programme

- Work in international scientific groups
- Duration 6 – 8 weeks

Funding & conditions

- Free accommodation in JINR hostel
- Reimbursement of all travel expenses
- Daily allowance

Participants

- Bachelor students finishing their 3rd year
- Master students
- PhD students of the 1st year

How to apply

- Fill in the application form on students.jinr.ru
- Highlight the spheres of interest

63 students were selected for the JINR SSP-2017

SSP fields of research

Summer Student Program

at Joint Institute for Nuclear Research

HOME

ABOUT JINR

PARTICIPANTS



It's neither a school nor a conference. It's pure practice

Applications admission closed

Applications review and selection by supervisors: 21 Apr 2017, 21:00

Participants list publication: 25 Apr 2017, 19:00

SUMMER PROGRAM - 2017

Fields of research

Contacts

Sponsors

How to get

Organizers

News

Submit news

Purpose and Imp

About the Program

Program Purpose

The main purpose of the Member States on a con projects.

Program Dates

The Summer Student P scientific groups and w year.

Program Participants

Participants of the Prog students or PhD studen organizations of the JIN

Application Procedure

To participate in the sele

Neutron Physics



On the basis of the JINR Laboratory of Neutron Physics, two neutron sources are operated: fast neutron pulsed reactor IBR-2 and intense resonance neutron source IREN. These facilities allow conducting research on the breaking of fundamental symmetries in nuclear interactions, studying the physics of ultra-cold neutrons, developing application methods in neutron nuclear physics.

Investigations of Neutron Nuclear Interactions and Properties

of the Neutron

Development of Experimental Facilities for Condensed Matter Investigations with Beams of the IBR-2 Facility
Development of the IBR-2 Facility with a Complex of Cryogenic Neutron Moderators

Condensed Matter Physics



In the laboratories of the Institute, theoretical and experimental research in condensed matter physics is carried out. It includes spectroscopic studies of hydrogen bonding; behavior of surfactants, polymers and their mixtures in the volume and on the surface; study of plasmonic nanostructures in the pores of silicon oxide using Raman, SERS and CARS spectroscopy methods; structural analysis of complex nano- and micromaterials using small-angle neutron scattering; computer simulation of the tunnel characteristics of superconducting nanostructures, etc.

Investigations of Condensed Matter by Modern Neutron Scattering Methods

Multimodal Platform for Raman and Nonlinear Optical Microscopy and Microspectroscopy for Condensed Matter Studies

Networking, Computing, Computational Physics



JINR Laboratory of Information Technology ensures creation and further development of the JINR information and computer infrastructure, methods, algorithms and software for the modeling of physics systems, mathematical processing and analysis of experimental data. The following areas are being developed: monitoring of distributed information and computer systems; data storage systems and technologies; parallel programming technologies MPI, OpenMP, CUDA, MPI-CUDA; hybrid architectures; Big Data; cloud technologies; development of information systems; development and analysis of mathematical models of quantum computing and quantum information; information methods of data and social networks analysis; computational methods in physics; mathematical methods for simulation of complex physics systems; development of algorithms of parallel computing; mathematical methods and software for

processing of experimental data.

Information and Computing Infrastructure of JINR

Methods, Algorithms and Software for Modeling Physical Systems, Mathematical Processing and Analysis of Experimental Data

Radiobiology



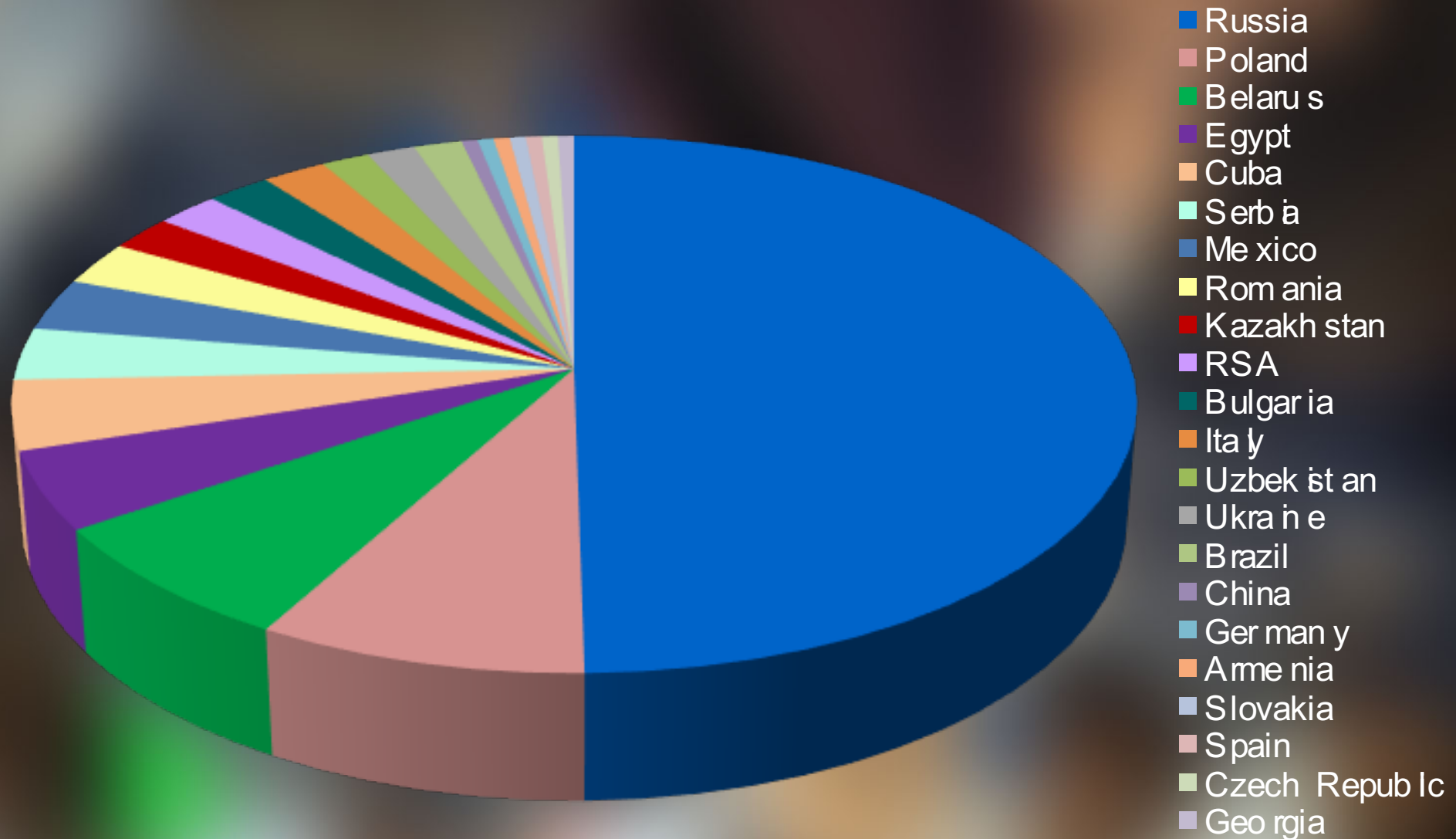
In the JINR Laboratory of Radiobiology, theoretical and experimental issues of biological effects of heavy charged particles of different energies are studied. Cosmic dust and organic compounds in meteorites and ancient terrestrial rocks are also investigated by nuclear physics methods. It allows obtaining data that may reveal the background of the origin of terrestrial and extraterrestrial life.

Research on the Biological Effect of Heavy Charged Particles with Different Energies

Research on Cosmic Matter on the Earth and in Nearby Space; Research on the Biological and Geochemical Specifics of the Early Earth

- Theoretical and Mathematical Physics
- Particle Physics
- Nuclear Physics
- Neutron Physics
- Condensed Matter Physics
- Networking, Computing, Computational Physics
- Radiobiology
- Accelerators Physics
- Particle Detectors
- Applied Research Using Nuclear Physics Methods

JINR SSP participants representation



Total number of participants 2014-2018 – **191**

More opportunities



International Student Summer Schools



Organized by JINR

International School on

Nuclear Methods for Environmental and Life Sciences



Montenegro, Budva, Becici

April 22-28, 2018

TOPICS:

- Nuclear and related techniques for the environmental studies
- Nuclear medicine: radioisotopes and hadron therapy
- Nuclear detectors in medicine
- Radioecology
- Radiogenetics

Organizing Committee:

Chairman: Victor Matveev
Co-Chairmen: Stanislav Pakulyak
Vadim Bednyakov
Secretary: Tatyana Donskova
Members: Otilia Culicov
Marina Frontasyeva
Andrey Khrgian
Julia Rybachuk
Konstantin Vergel
Alexey Zhemchugov

The 8th International Student Summer School «Nuclear Physics – Science and Applications» (NUCPHYS – SC & APPL)



26 July – 4 August 2017
Brasov, Romania

Seventh International Student Summer School on Nuclear Physics – Science and Applications (NUCPHYS-SC&APPL)



DCBNA

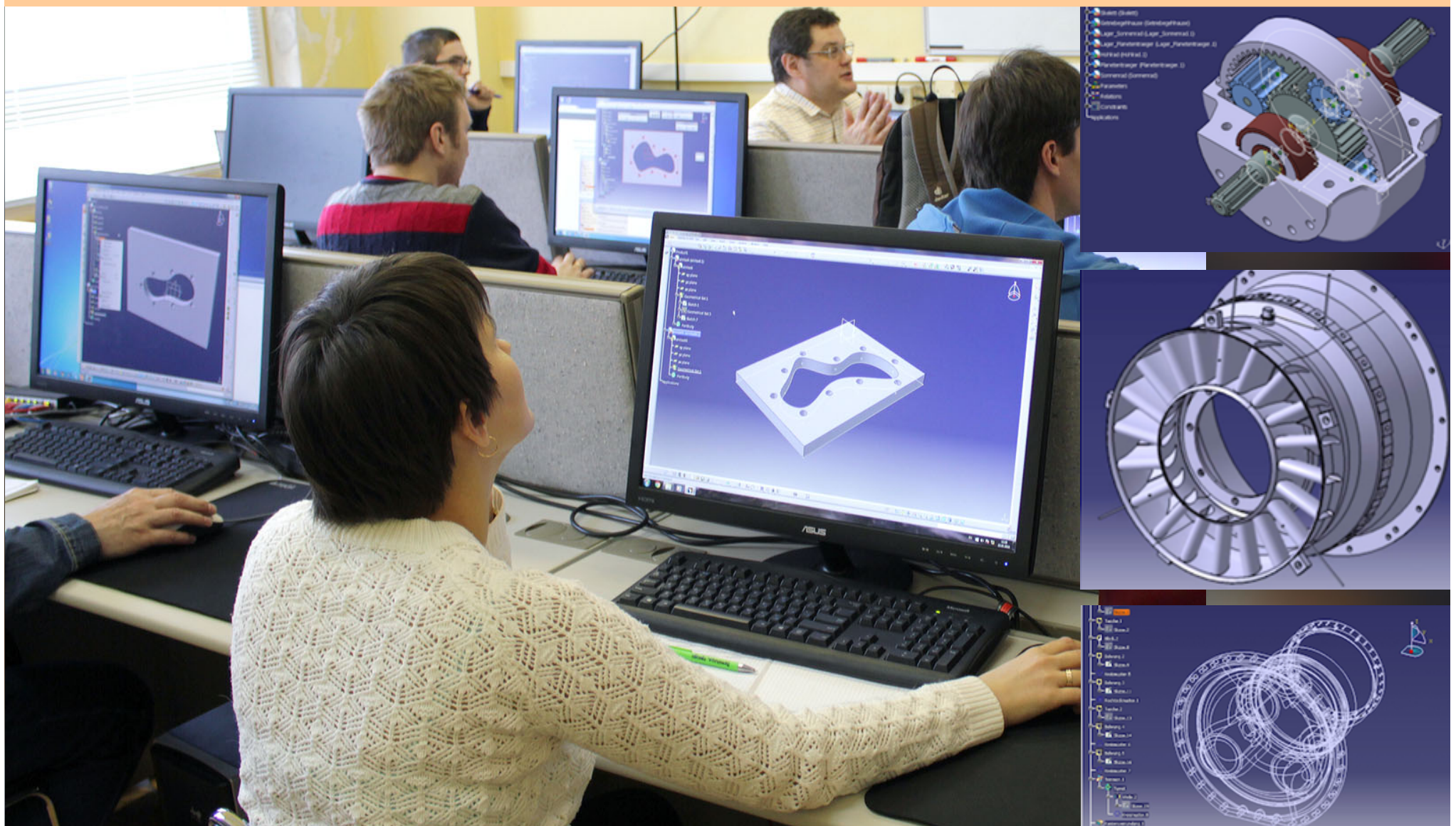


Adam Mickiewicz University
in Poznań

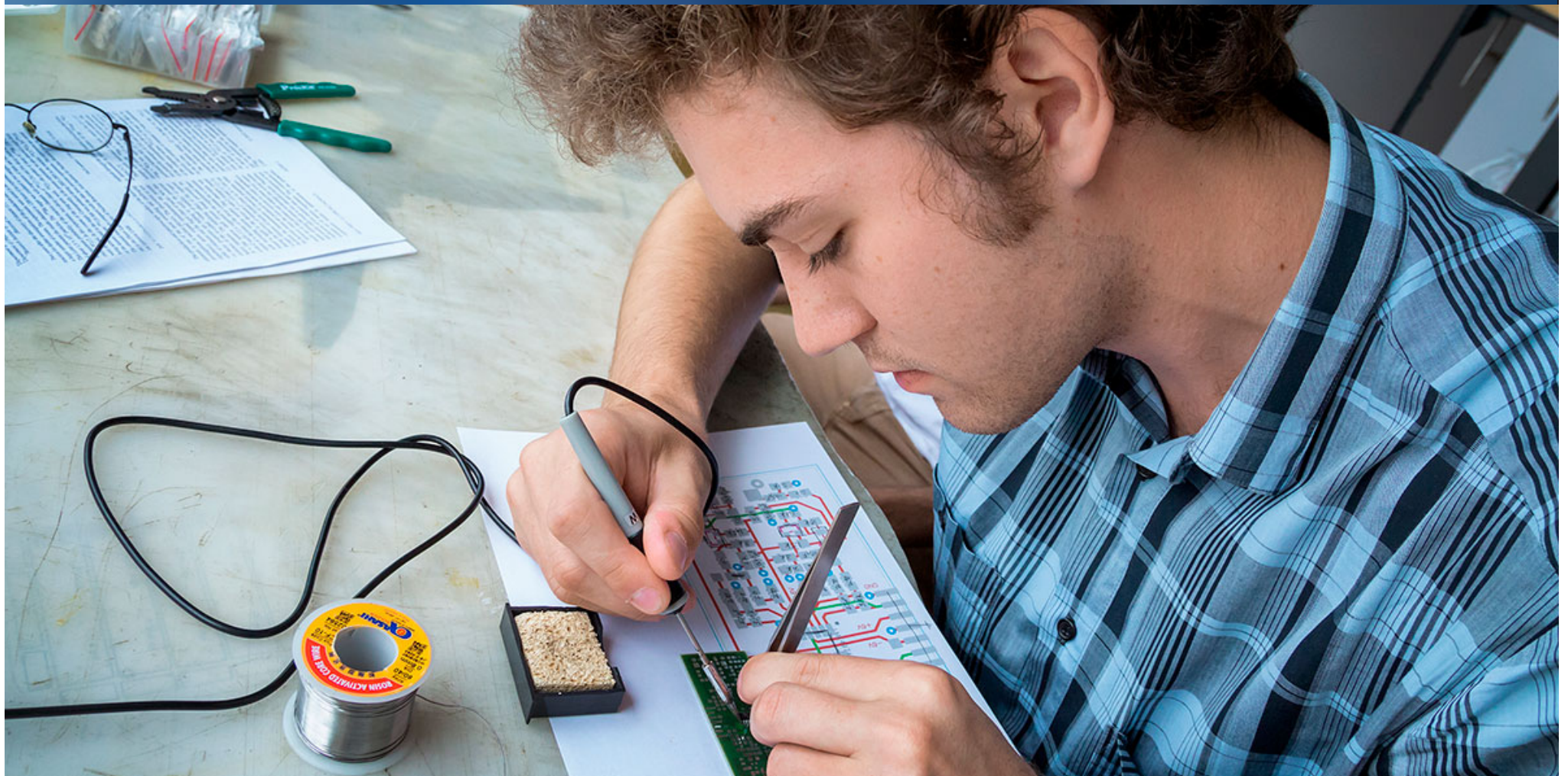


Faculty of Physics Adam Mickiewicz University in Poznań
Poznań, Poland, June 24 – July 4, 2015

Training course in CATIA-GDML Geometry Builder



Practice and training for researchers and engineers



Dedicated training centre at JINR (since 2014)

Motivation

- Modern research requires both practical skills and theoretical knowledge.
- JINR provides an opportunity to obtain access to radioactive materials, working accelerators, giant experimental setups etc.

Usus est optimus magister

Scope of the training

Basic laboratory works (since 2016)

- Nuclear physics and cosmic rays
- Electronics
- Vacuum technology

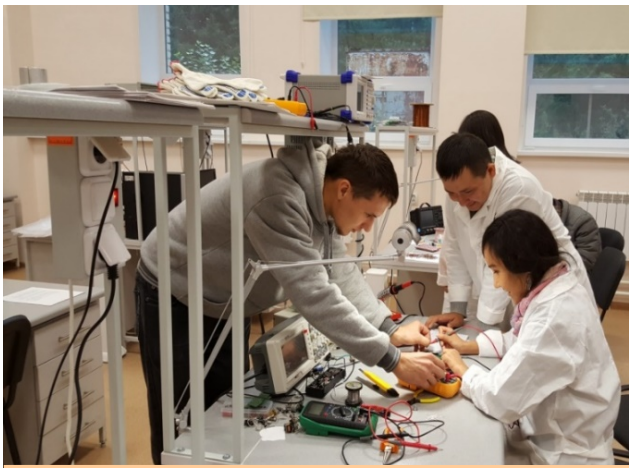
Advanced laboratory works

- Radiation protection and safety
- Controls and automation
- RF technology
- Advanced electronics
- Magnets
- Particle detectors
- Neutron physics, metrology etc.

Laboratory works at the Linac-800 accelerator

(will be available after Linac-800 commissioning)

- Accelerator operation and beam diagnostics
- Detector characterization using particle beams
- and more

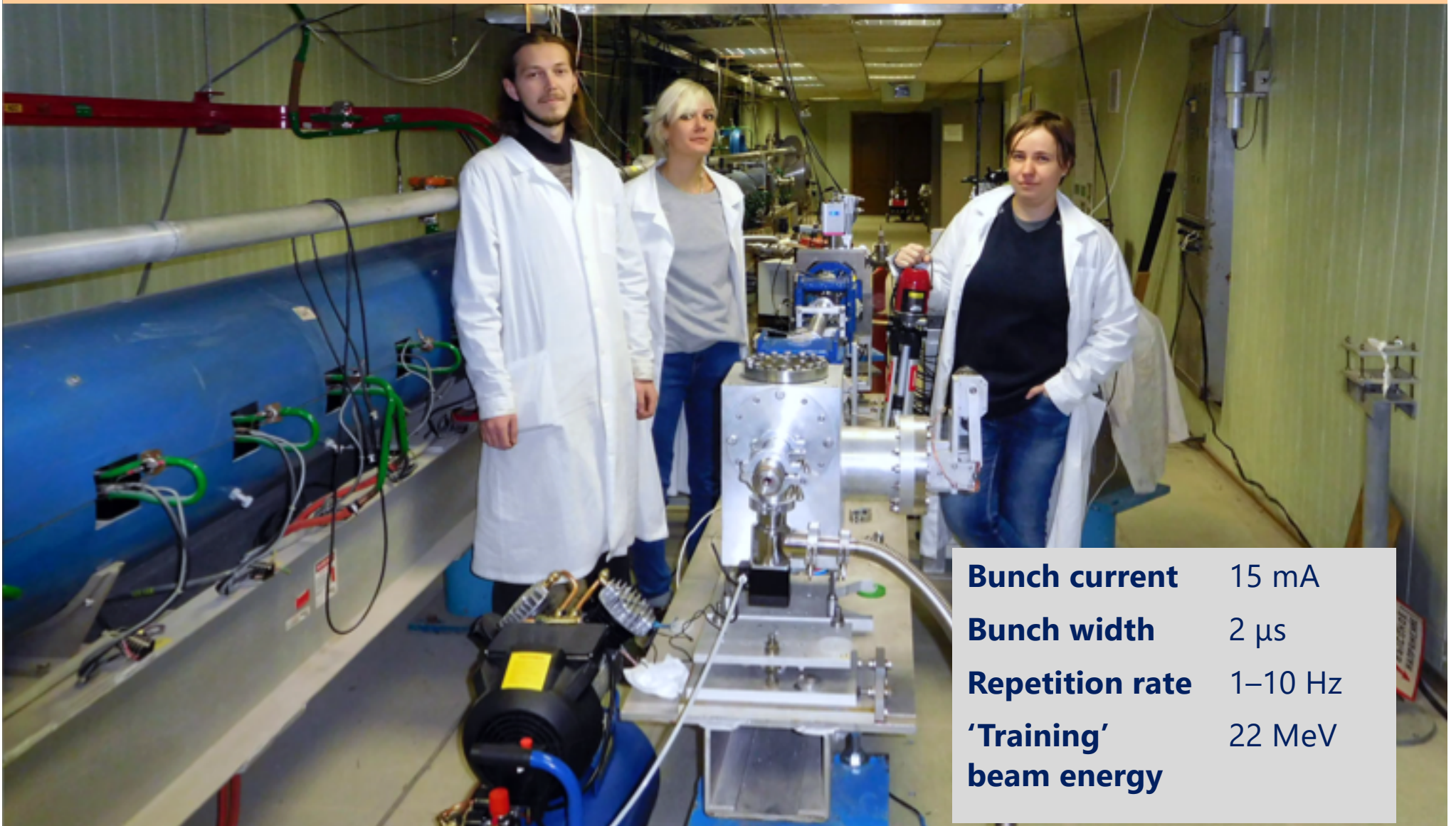


Engineering Training Lab



Scientific and Engineering Group

LINAC 200 electron accelerator



Bunch current	15 mA
Bunch width	2 μ s
Repetition rate	1–10 Hz
'Training' beam energy	22 MeV

Outreach programmes



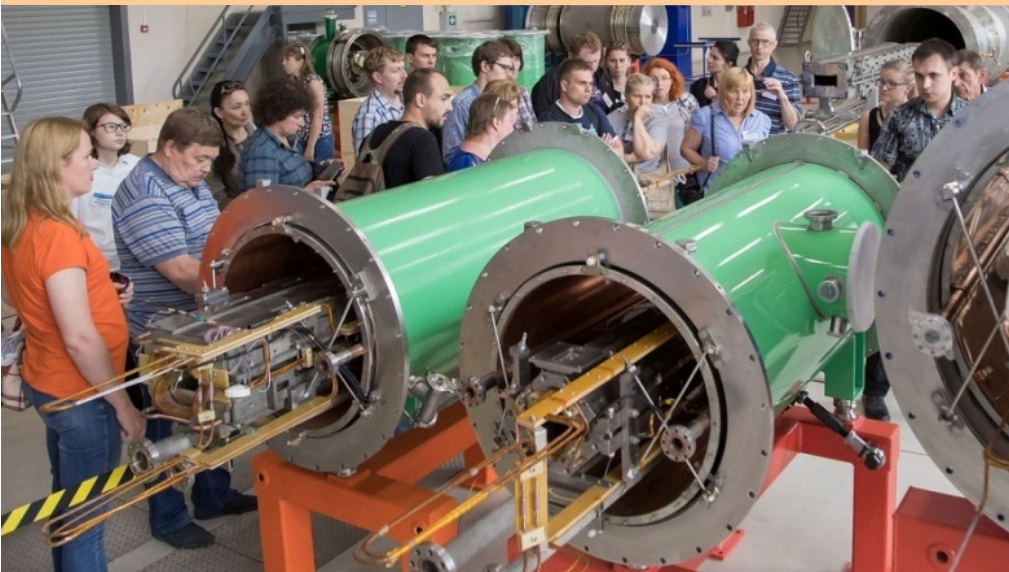
International scientific schools for physics teachers at JINR and CERN

What do we want to achieve?

- Raise and maintain the interest of students in modern science.
- Motivate students to study science and engineering at universities.
- Prepare the future generation of scientists and engineers.
- Show that **Science is alive!**

Basic components:

- Visits to experimental facilities;
- Lectures;
- Hands-on activities;
- Meetings with research physicists;
- Communication with colleagues from different regions.



Bringing Science closer to School

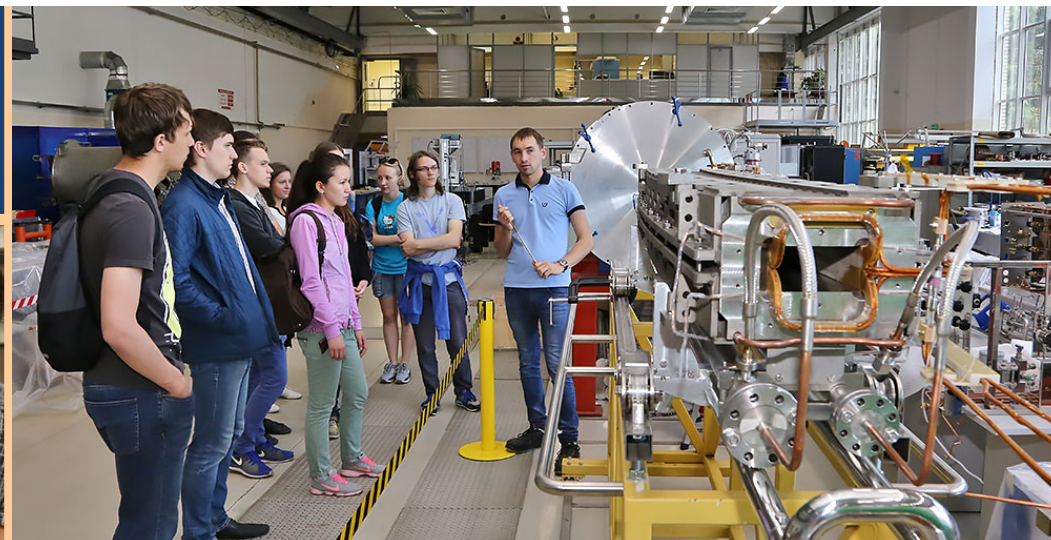
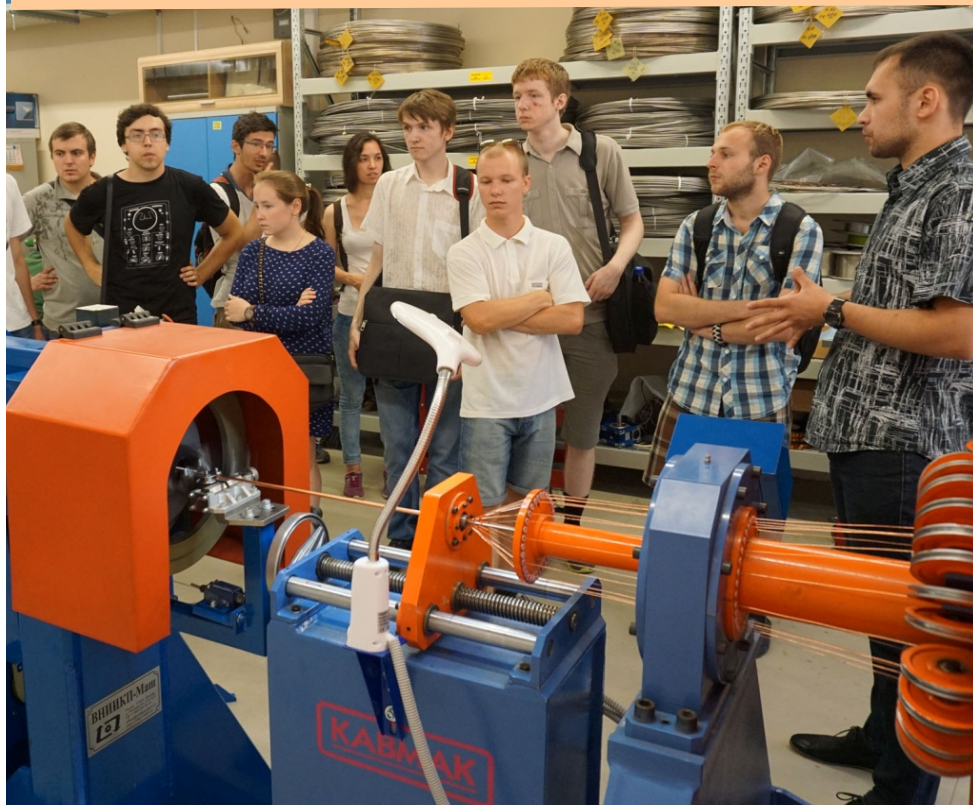
Schools at JINR



Schools at CERN



Visits to the JINR labs



for students and teachers



Festivals of science and Days of Physics in Dubna



Parameters

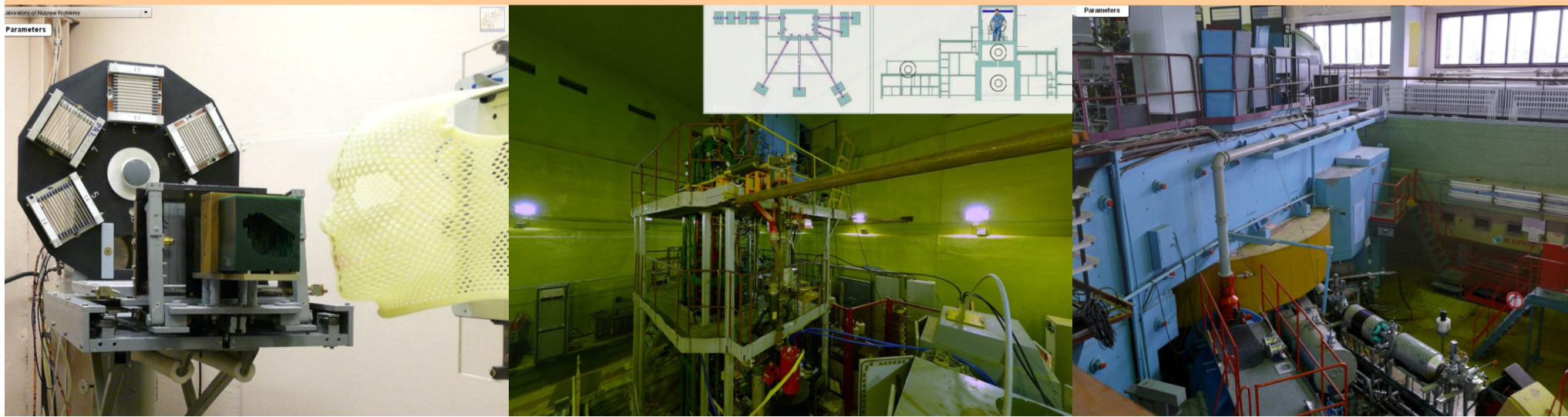
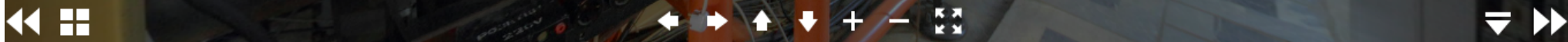
Nuclotron – Superconducting heavy ion synchrotron	
Circumference, m	251.5
Ions	from p up to A>100
Maximum magnetic rigidity, T m	43
Maximum energy	12 GeV for protons, 6 GeV/u for A/Z = 1/2
Intensity, particles per pulse	from 10 ⁵ (heavy ions) up to 5 · 10 ¹⁰ (d)
Magnetic field ramp, T/s	up to 2
Slow extraction spill duration, s	up to 10
Alvarez-type DTL LU-20	
Length of the cavity, m	14.5
Maximum fore-injector voltage, kV	700
Output proton energy, MeV	20
Output ion (Z/A ≥ 1/3) energy, MeV/u	5
Peak current, mA	10
RF frequency, MHz	150

3D tours around JINR basic facilities



uc.jinr.ru, '3D visit' section

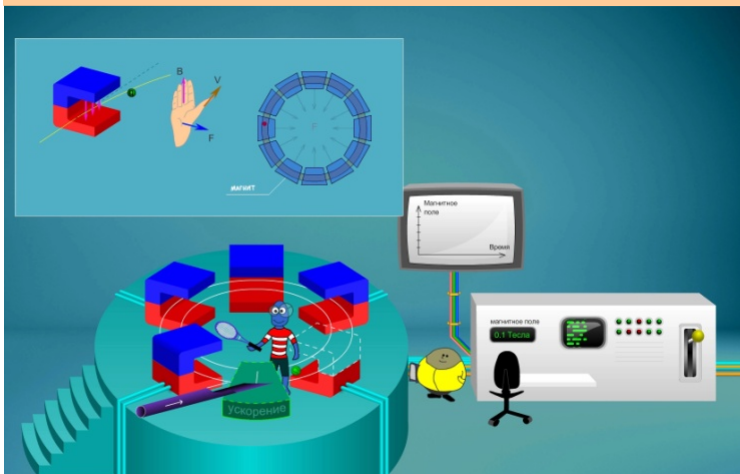
JINR: Nuclotron - Internal target - 2014



<http://edu.jinr.ru/>

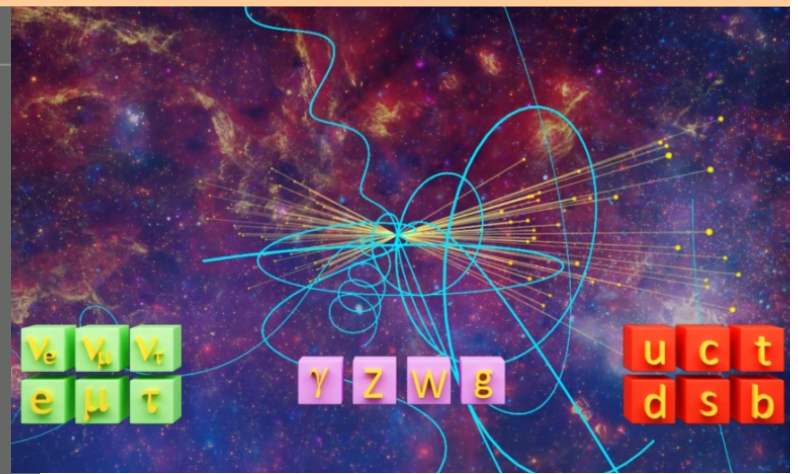


'NICA Mega-science project' video lesson



ОБЪЕДИНЕННЫЙ ИНСТИТУТ ЯДЕРНЫХ ИССЛЕДОВАНИЙ

КОЛЛАЙДЕР NICA



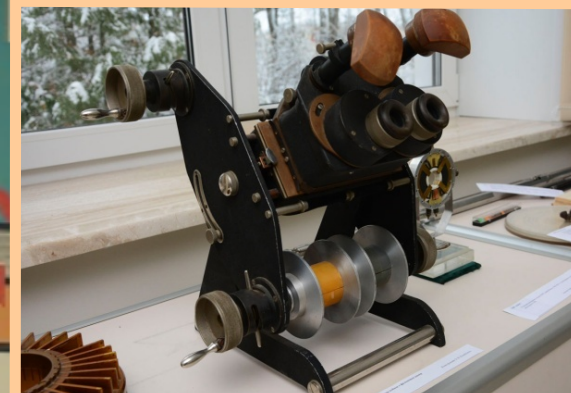
Popular lectures on modern science



- Modern science in simple words
- Entertaining particle physics for school students
- Lab work using real experimental data



Renovated JINR museum



Videoconferences with JINR for schools



Science brings nations together



Science brings nations together



Thank you for your attention



Welcome
to Dubna