

JINR University Centre in 2014 – 2018.

The University Centre, established in 1991, provides overall coordination and support to the JINR Educational Programme, taking into account the basis of modern programmes of the development of the Institute which is defined by the triad: science – education – innovation.

Educational process on the basis of JINR

Over 400 students of JINR based departments from MSU, MIPT, MEPhI, Dubna University and universities of the Member States get training and practice on the basis of JINR.

Currently, there are JINR based departments from MISU, MEPhI, MIPT, St. Petersburg State University, Kazan (Volga) Federal University and international university “Dubna”. The UC has cooperation agreements in education with 73 higher education institutions and organisations of Armenia, Azerbaijan, Belarus, Bulgaria, Cuba, the Czech Republic, Georgia, Kazakhstan, Moldova, Mongolia, Poland, Romania, Slovakia, Ukraine, and Uzbekistan.

During 2014 – 2017, educational practices and trainings were organised for 505 students from Armenia, Belarus, Georgia, Mongolia, and Russia. Students of JINR based department from the university “Dubna” constituted the majority of participants.

In 2014 – 2015, 37 people from Armenia, Belarus, Germany, Kazakhstan and the Russian Federation were working on their PhD degree at JINR.

Since February 2015, due to the reorganization of the post-graduate study in the country where the Institute is located, JINR has a procedure for assigning Institute staff to JINR, so that they could work on their dissertations for the Degree of Candidate of Science without mastering educational programmes during their PhD studies. At present, 24 applicants from Georgia, Kazakhstan, Mongolia, and the Russian Federation are assigned to JINR.

About 100 lecture courses are annually offered to students of JINR based departments of MIPT, MSU, and University “Dubna”; other students who arrive at the Institute for trainings and preparation of qualifying paper can also attend the lectures.

To implement the training programmes for experimental and engineer physicist, there have been developed laboratory works on electronics and microwave engineering within the frames of the UC scientific engineering workshop.

JINR Summer Student Programme 2014-2018

191 under-graduate and post-graduate students from Armenia, Belarus, Bulgaria, Cuba, the Czech Republic, Egypt, Georgia, Kazakhstan, Mexico, Poland, Romania, Russia, Serbia, Slovakia, South Africa, Spain, Ukraine, and Uzbekistan have taken part in the Summer Student Program initiated in 2014. During 4-8 weeks they carried out student research projects within the frameworks of the thematic research plan and international cooperation of JINR.

International Events

The UC is a co-organizer of a series of international events for under-graduate and post-graduate students from JINR Member States, Institute's Associate Members and those countries which JINR has agreements on scientific cooperation with.

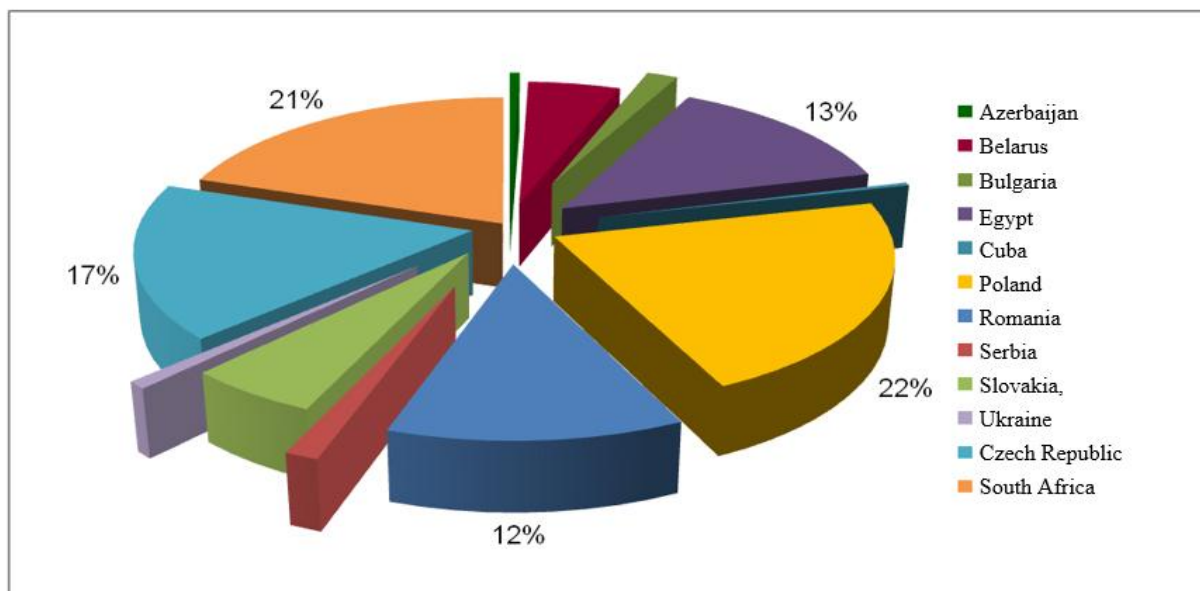
Among them there is the 7th International Student School “Nuclear Physics – science and applications” which took place in Poznan, Poland, in 2015. The participants were young scientists from JINR and representatives of universities of Armenia, the Czech Republic, Poland, Romania, Russia, and Uzbekistan.

In 2015, the International School-Conference “Integrable structures in quantum field theory” was organised for students and JINR young staff members in the framework of the Bogoliubov JINR-Ukraine program on theoretical physics.

In 2017, over 70 under-graduate and post-graduate students from Armenia, Cuba, the Czech Republic, Macedonia, Poland, Romania, Russia, Serbia, and Ukraine participated in VIII International Summer Student School “Nuclear Physics – Science and Applications” (NUCPHYS-SC&APPL) in Brasov, Romania.

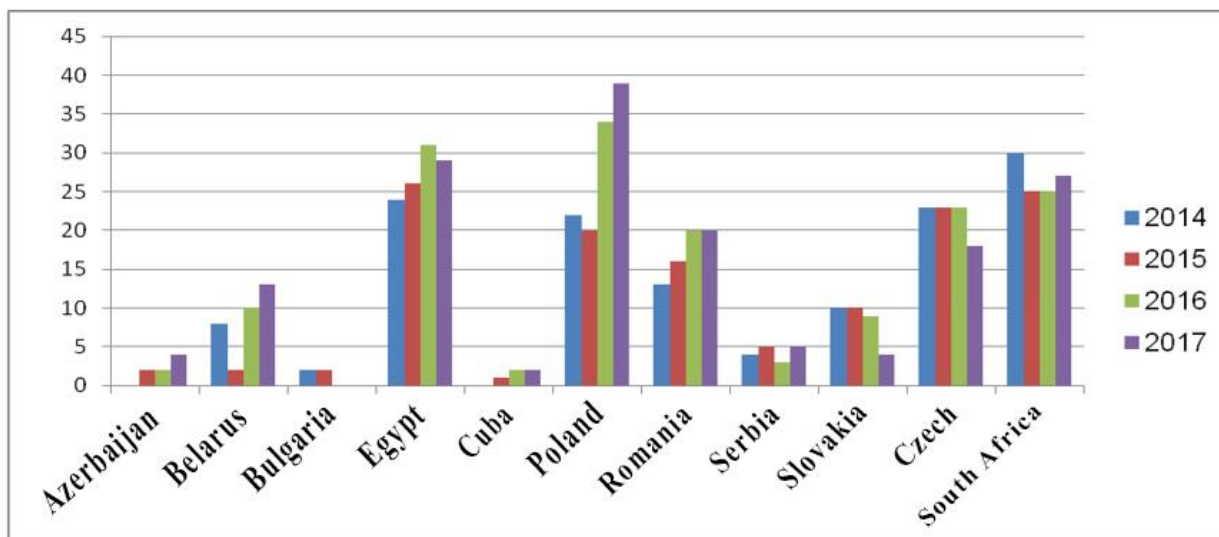
In Spring, 2018, 53 students from Albania, Bosnia, Bulgaria, Croatia, Greece, Hungary, Macedonia, Montenegro, Romania, and Serbia took part in International School on Nuclear methods for Environmental and Life sciences, which was held in Budva, Montenegro.

Since 2004, International Student Practices in JINR Fields of Research have been organised annually in summer time and have been attracting interest from students from JINR Member States and Associate Members. In the history of the International Student Practice, over 1500 representatives from Azerbaijan, Belarus, Bulgaria, the Czech Republic, Cuba, Egypt, Poland, Romania, Serbia, Slovakia, South Africa, and Ukraine have participated in the Practice. The majority of the participants have come from Poland – 316 people, South Africa – 287 people, The Czech Republic – 250 people, Egypt – 196 people. Due to an increasing number of those willing to participate in the Practice, it has been held in 3 Stages since 2009.



Number of participants by countries in 2004 – 2017

In 2014 – 2017 the number of participants reached 588 people.



Number of participants in the Practices in 2014-2017

The program of the Practice includes lectures on the directions of research carried out at JINR, introduction to modern achievements, guided tours to the JINR laboratories and basic facilities and work on research projects under the supervision of JINR specialists. Projects can be chosen on the UC website from the annually adjusted database. At the End of the Practice, students present project reports on the work they have performed at JINR

Since 2016, the UC has been a co-organizer of the International Training Programme “JINR Expertise for Member States and Partner Countries” (JEMS) for administrative and scientific personnel from research and educational organisations of JINR Member States, associated members, and partner countries in Nuclear Physics and related disciplines. JEMS trainings are held every 3-4 months; the participants get acquainted to the JINR operating principles, research and educational programmes, user policies, as well as means and formats of participating in JINR activities. The programme includes a tour of JINR basic facilities, presentations delivered by top laboratory management and leading scientists, meetings and round-table discussions with JINR Directorate.

International Scientific Schools for Physics teachers at JINR and CERN

Starting from 2009, JINR UC has been organising annual Scientific Schools for Physics Teachers. The programmes are run on the basis of the largest international research centres – Joint Institute for Nuclear Research (JINR) and European Organisation for Nuclear Research (CERN).

In 2014-2017, 151 teachers and 41 pupils from Azerbaijan, Belarus, Bulgaria, Kazakhstan, the Russian Federation, and Ukraine participated in the schools. In 2014-2016, on the proposal and direct financial support of Moscow City Teachers Hall, there were organised specific programmes only for teachers from Moscow.

In 2014-2017, 177 Physics teachers from Armenia, Azerbaijan, Belarus, Kazakhstan, Moldova, the Russian Federation, Switzerland, and Ukraine participated in the Scientific Schools held at CERN.

The main purpose of the Schools is to introduce teachers from JINR Member States to accelerators, Physics Programmes, intellectual and technical potential of the European Organization for Nuclear Research and the Joint Institute for Nuclear Research.

For teachers and school students from the Russian Federation and JINR Member States, there is a specialized website (<http://teachers.jinr.ru/>).

Scientific outreach

In 2016 and 2017, JINR presented its expositions at two exhibition sites in Moscow at the VI and VII All-Russian Festival NAUKA 0+. At the Expocentre, there was a programme designed for visitors of different ages; the programme included experiments in physics and chemistry, master classes in robotics, and quizzes that allowed testing common knowledge in the natural sciences. At the Main Library of Moscow State University, visitors were introduced to the directions of the Institute's scientific activity with demonstrations of the models of the multifunctional MPD detector of the NICA accelerator complex and the IBR-2 reactor, deep-water neutrino telescope for the Baikal experiment, and the calorimeter used in the COMPASS experiment. Young scientists from JINR gave popular science lectures at both sites.

In 2017, within the framework of the XIX World Festival of Youth and Students, held in Sochi, the Ministry of Education and Science of the Russian Federation presented a number of exhibition and discussion sites; among them was the “Megascience: Russia in the World – Russia for the World” projects exposition. An international group of JINR young staff members presented the Institute’s flagship project – the accelerator complex NICA, and introduced visitors and Festival guests to the Educational programme and opportunities for under-graduate and post-graduate students at JINR.

In August 2014, 25 students of natural sciences and engineering participated in Physics workshop “Element 105”, organised by Open Educational Project “Summer School”.

In 2015, JINR together with the Administration of Dubna held the School of Guides. 27 participants got acquainted with the history of Dubna and the Institute, with the activities of famous scientists, with the research directions of the JINR Laboratories, visited the basic facilities of the Institute.

Work with school students

Since 2014, JINR UC and the Interschool Physics and Mathematics Open Classroom have annually conducted “Physics Days” in Dubna. Physics enthusiasts can attend to lectures on scientific activities of JINR, participate in work-shops, Physics and Maths fights, and enjoy spectacular demonstrations of chemical and physical experiments. Together with adults, school students work out and perform physical experiments. Over 300 students from various cities of Russia have participated in the “Physics Days” events.

The Robotics Tournament of the Open Upper Volga Cybernetics Network, started in 2016 in the framework of the Days of Physics. In 2018, due to a largely increased number of participants and the expansion of its program, the Tournament became a separate event. The tournaments are organised by the JINR UC and the Interregional Computer School. The Tournament was organised with the help of system integrator CROC, Applied Mathematics Institute named after academician M.V. Keldysh, Moscow State Technical University named after N. Bauman, and OOO Citadel. In 2018, 120 school students from 17 cities and towns of the Moscow region took part in the Tournament, about 100 people were the audience.

During their school hours, about 40 high-school students from Dubna attend classes in physics, lectures and perform laboratory works at Physics workshop at the UC to get prepared for taking USE.

At the supplementary education centre PRIMER there have been organised classes in LEGO based Robotics (for primary school students), in CI programming (Arduino based Robotics), and introductory project programming together with classes in Maths.

In 2017, JINR UC Department of Development of modern education prepared an Open videolesson «NICA – the Universe in a laboratory» which is accessible on the NICA Project website. The material was used at open classes in schools around Russia.

At the beginning of January, 2014, there was held the International Scientific School-Conference “Flerov Readings 2014” for high-school and first year students. It was organised by JINR, Dubna Lyceum No. 6, and Open Educational Project “Summer School”.

Video conferences

JINR University centre organises and supports video conferences, carries out broadcasting of lecture courses and seminars via JINR video conferences managing system.

Visits

The UC organises introductory programs for school and university students and teachers. At the stage of planning the visits, the level of training and the specialisation of the guests are taken into account. Annually about 500 teachers of natural sciences, high-school and university students of physical and mathematical, engineering and IT departments visit JINR.

Training and further professional development for workers, engineering and technical staff, and employees

The UC provides qualification development courses, professional skills gaining and mastering courses, and certification for employees of JINR and Dubna organisations.

About 100 JINR staff members attend English, German, French, and Russian languages classes.