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## I. Proton beams are back in the LHC

After two years of intense maintenance and consolidation, and several months of preparation for restart, the Large Hadron Collider (LHC), the most powerful particle accelerator in the world, is back in operation. On April 4, 2015 a proton beam was back in the 27-kilometer ring, followed at 12.27pm by a second beam rotating in the opposite direction. These beams circulated at their injection energy of 450 GeV. "After two years of effort, the LHC is in great shape," said CERN Director for Accelerators and Technology, Frédérick Bordry. "But the most important step is still to come when we increase the energy of the beams to new record levels." The LHC is entering its second season of operation. Thanks to the work done in the last two years, it will operate at unprecedented energy - almost double that of season 1 - at 6.5 TeV per beam. With 13 TeV proton-proton collisions expected before summer, the LHC experiments will soon be exploring uncharted territory.

The Brout-Englert-Higgs mechanism, dark matter, antimatter and quark-gluon plasma are all on the menu for LHC season 2. After the discovery of the Higgs boson in 2012 by the ATLAS and CMS collaborations, physicists will be putting the Standard Model of particle physics to its most stringent test yet, searching for new physics beyond this well-established theory describing particles and their interactions.

Source: [http://jinr.ru/news\\_article.asp?n\\_id=2509&language=eng](http://jinr.ru/news_article.asp?n_id=2509&language=eng)

## II. Russia will continue to cooperate with the West in Science

nature.com

The Nature journal, one of the largest and most prestigious editions in the world dedicated to science, has published an interview with Dmitry Livanov, the Minister of Education and Science of the Russia.

Answering the question whether the complex geopolitical situation is a threat to international scientific cooperation of Russia, Dmitry Livanov said that the value of such cooperation today becomes even more than a year ago. "Some issues have still been needed to be solved, but they are mostly related to the supplies of modern technologies and the purchase of new equipment. Anyway, Russia will continue to work within the framework of such projects as the Large Hadron Collider, European X-ray free electron laser, the European Centre for Antiproton and Ion Research and the International Thermonuclear Experimental Reactor. Moreover, we will be taking part in the ESRF project in Grenoble", - the minister said, adding that the search for new knowledge is a process, beneficial to everybody, so it should not be affected by the political and economic situation.

Dmitry Livanov also said that the weakening of the ruble has not affected the funding of science in Russia too much. According to the minister, the priority will be given to the interdisciplinary researches what is expected to lead to the emergence of new breakthrough ideas and allow the costs to be repaid. The head of the Russian Ministry of Education and Science said that Russia will continue to develop the mega grants program.

Source: [http://www.strf.ru/eng/material.aspx?CatalogId=94455&d\\_no=95671#.VXafKUaT5u5](http://www.strf.ru/eng/material.aspx?CatalogId=94455&d_no=95671#.VXafKUaT5u5)



### III. Russian reconnaissance aircraft to study the Earth's climate. March 2015

In 2016, the Russian aircraft M-55 Geophysica will begin flights to study the Earth's climate as part of the European research project StratoClim.

The Alfred Wegener Institute for Polar and Marine Research in Germany and the Myasishchev Experimental Machine Building Plant (EMZ), which produces the M-55, signed a contract for the use of the aircraft in February 2015.

Scientists from 26 European research institutes will participate in the StratoClim project using data that Geophysica will collect in the stratosphere.

They will create a dynamic model of the atmosphere, which will enable scientists to predict the Earth's climate changes for decades to come. To participate in the project StratoClim, the M-55 should be upgraded; the corresponding items were included in the contract signed by the Russian and European sides. The exact amount of the deal was not reported, but it is known to be worth several million euros. "The aircraft will be more state-of-the-art due to its use of digital technologies", EMZ's press service pointed out.

Source:

[http://rbth.com/science\\_and\\_tech/2015/03/09/russian\\_reconnaissance\\_aircraft\\_to\\_study\\_the\\_earths\\_climate\\_44253.html](http://rbth.com/science_and_tech/2015/03/09/russian_reconnaissance_aircraft_to_study_the_earths_climate_44253.html)

## IV. St. Petersburg University to map the Russian genome

St. Petersburg State University launches the Genome Russia Project aimed at collecting and analyzing DNA samples of the representatives of major ethnic peoples inhabiting Russia. The project will create a national collection of genetic data will engage researchers from other educational institutions and research organizations. The work, scheduled to start this year, will reach across Russian Biomedical Centers and join with an international "1000 genomes project" created to uncover rare gene variants in different human populations. DNA from the Russian volunteers will be subject to whole genome sequence assessment suitable for mining there genomes for secrets of their past and their future.

Genome Russia is very important not only for the medical field and healthcare but also for biologists, political scientists, ethnographers, and historians, since there is a plan, at a later stage, to compile a complete information database for all ethnic groups living on the Russian territory. Genetic information will enable historians and ethnographers to achieve better understanding of the movements of various ethnic groups, while pharmacists and doctors will get more accurate data on efficacy of different medical drugs for different people, a beginning to precision medicine in Russia

Genome Russia comprises researchers from over 20 Institutions across Russia and is coordinated by the Theodosius Dobzhansky Centre for Genome Bioinformatics at St. Petersburg State University, directed for the past several years by Professor Stephen J. O'Brien.

Source:

[http://rbth.com/science\\_and\\_tech/2015/02/27/st\\_petersburg\\_university\\_to\\_map\\_the\\_russian\\_genome\\_44039.html](http://rbth.com/science_and_tech/2015/02/27/st_petersburg_university_to_map_the_russian_genome_44039.html))

## V. MIPT Scientists Participate in Second Phase of the GERDA Experiment

Scientists from the Moscow Institute of Physics and Technology (MIPT) are among those currently working in the GERDA experiment, which is aimed at searching for neutrinoless double beta decay of Ge-76 nuclei. Several MIPT postgraduate and undergraduate students, including even a third-year student are involved in this project too. The GERDA experiment has been carried out in the low-background underground Gran Sasso National Laboratory (Italy).

Experimental data on neutrinoless double beta decay, as well as neutrino oscillations, are key to understanding the nature of weak interactions. Results of the first phase of experiment in the Gran Sasso National Laboratory are published in the Physical Review Letters and in a continuing series of articles in the European Physical Journal C.

GERDA collaborators are now working on the second phase of the experiment, in which they plan to improve the sensitivity of the setup by a full order of magnitude. The third phase is under discussion. For this phase, physicists are contemplating a consolidation of the resources of GERDA and the MAJORANA project in the USA.

Source: [http://mipt.ru/en/news/mipt\\_scientists\\_participate\\_in\\_second\\_phase\\_of\\_the\\_gerda\\_experiment](http://mipt.ru/en/news/mipt_scientists_participate_in_second_phase_of_the_gerda_experiment)

## **VI. The agreement about cooperation between Russia and China in the field of satellite navigation system was signed**

First session of Russian-Chinese intergovernmental Committee on satellite navigation system was conducted in Beijing. The establishment of a Committee became the next step toward intergovernmental collaboration between Russian Federation and Chinese People's Republic in development of satellite navigation systems — GLONASS and BeiDou. Co-chairmen of a Committee are Head of Federal Space Agency Igor Komarov and Director of a China Satellite Navigation Office Ran Chengqi.

During the session the wide range of issues about collaboration in the field of creation of electronic component base and LV's engines for space industry was discussed.

More information: <http://en.federspace.ru/20372/>





## **VII. A delegation of the French scientific center IN2P3 at JINR**

A regular meeting of the Joint Committee on the collaboration of the National Institute for Nuclear Physics and Particle Physics (IN2P3), France and JINR was held in February 2015 in Dubna.

On the French side, the meeting was attended by Director of IN2P3 Jacques Martineau.

JINR was represented by JINR Director V.A. Matveev.

After the meeting of the Coordination Committee at the JINR Directorate the delegation members visited JINR laboratory. They were acquainted with work of the FLNR cyclotron complex. They visited VBLHEP, where they were told about the NICA project, the factory superconducting magnets, the detector laboratories.

More information: [http://www.jinr.ru/news\\_article.asp?n\\_id=2408&language=eng](http://www.jinr.ru/news_article.asp?n_id=2408&language=eng)



## VIII. A visit of a delegation of the German Embassy to JINR

A delegation of the Embassy of the Federal Republic of Germany in Russia headed by Director of the Economics and Science Department Mr. Wolfgang Dik visited the Joint Institute for Nuclear Research on 4 February 2015. The guests visited cyclotrons of the Laboratory of Nuclear Reactions and the MASHA facility; they were acquainted with one of the IBR-2 channels, where scientists from Germany are working, as well as with environmental research of the Laboratory of Neutron Physics. In the Laboratory for High Energy Physics, they visited the factory of superconducting magnets, the detector laboratories for the NICA accelerator complex.

"There is very good equipment in laboratories which we have visited – W. Dik shared his impressions of the visit. – Research that can be done here is not available in Germany because we do not have a research reactor; we quitted all nuclear programs, abandoned atomic power stations. We are also interested in large-scale projects which have been discussed – NICA and others. There is a general scientific interest, it is necessary to organize this cooperation with involvement of young scientists."

The visit was finished with a meeting at the JINR Directorate, where both sides voiced wishes to maintain and increase scientific contacts, to move towards each other in solving financial and operational issues, as well as attract young scientists.

More information: [http://www.jinr.ru/news\\_article.asp?n\\_id=2418&language=eng](http://www.jinr.ru/news_article.asp?n_id=2418&language=eng)

## IX. Russian Teacher Program in CERN

Russian Language session of Teacher Program in CERN will be held on the 22 - 29 March 2015. Similar courses have been held in 2009, 2010 and 2011 and 2012. All lectures and presentations have been archived and are freely available on the web-site:

[http://education.web.cern.ch/education/Chapter1/Page3\\_RU.html](http://education.web.cern.ch/education/Chapter1/Page3_RU.html)

The aim of the CERN Teacher Programs is to keep up-to-date with the latest developments in particle physics and related areas, and to experience a dynamic, international research environment:

1. The High School Teacher Program is a comprehensive international course held in English, aimed at teachers who would like to spend the first three weeks of July at CERN. The next session will take place from 5 to 25 July 2015.

2. The National Teacher Programs are held in one of the national languages of CERN Member States. These programs are also open for teachers from other countries (including non-member states) speaking the same language. Teacher programs for participants from non-member states can also be organized, but are only held in their national language if competent lecturers speaking this language are available. CERN provides all scientific, administrative and technical support for the program, such as scientific content and provision of national language facilitators, lecturers and guides. Travel and subsistence funds, covering accommodation and meals, are expected to be provided by national authorities or by other sources, e.g. educational foundations. The CERN education website offers information about teacher programs and educational resources for schools: <http://education.web.cern.ch/education/>



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