



World of MEPHI

September '20

**LET'S GET
STARTED!**

NEWS

MEPHI CONGRATULATES ITS STUDENTS ON THE KNOWLEDGE DAY

On September 1, MEPHI held a festive online concert for freshmen.

Rector of MEPHI Mikhail Strikhanov addressed the students "It gives me great pleasure to congratulate you on the National Day of Knowledge. You are students of the National Research Nuclear University MEPHI now. Our university has a glorious history. It was founded in 1942, on the eve of the decisive battle - the Battle of Stalingrad. It is initially filled with patriotism, lofty goals and a high mission. Now MEPHI occupies a leading position in the Russian Federation. We are consistently among the top five. MEPHI is a global

university, we train personnel for a large number of countries. In addition, our university has 16 branches in the most important points of presence of the State Corporation Rosatom. We are initially a high-level technical university».

The rector also noted "You have every opportunity to express yourself, your creative abilities, and to realize your ambitions after graduation. In addition to studying, you will have a rich student life. I wish you health and the implementation of all your plans. Welcome to the MEPHI family!

The creative teams of the university gave their performances and told about their activities. In



turn, the students shared their views on their creative 'laboratories', with warmth and pride.

Chairman of the Joint

Students Council of MEPHI Adelya Khasanova advised the freshmen to develop their skills constantly and not miss opportunities.

"Come to our student Council and to our events. Enjoy every moment of student life!" said Adela.



NEWS

INTERACTIVE EXHIBITION OPENS AT MEPHI



An interactive stand dedicated to the 75th anniversary of the nuclear industry is located in the hall on the 2nd floor of Building A, next to the Rosatom Career Center.

"We spent long time thinking about how to present information to students and how to make the exhibition more exiting and attractive for them. It is the NPP main control room panel. In fact, it is the heart of a nuclear power plant. The most nuclear experts are familiar

with the use of it", said representative of Rosatom Maria Sarbukova.

The exhibition includes an interactive experience using an augmented reality app that can be downloaded (QR code located at the stand). By pointing the camera at a horizontal surface, you can see an assistant who will tell you exactly what you see on the screen.

"One of our main tasks in the framework of vocational guidance is to show students that the nuclear



industry is not only nuclear power plants. This is a set of various industries, from medicine to composite materials", said Maria.

Through interaction with the stand viewers become participants: they receive their own personal experi-

ence, which helps to capture information actively instead of passive listening and observation.

Maria also noticed that three Instagram masks will be available soon. It will be possible to take a picture in the image of Kurchatov,

Einstein, or try on "smart glasses".

Next to the exhibition is the Rosatom Career Center, where you can get career advice, learn more about the specialties that are in demand at Rosatom State Corporation.

SCIENCE

RUSSIAN SCIENTISTS FIND NEW WAY TO TREAT COVID-19

Researchers at the National Research Nuclear University MEPHI have created an LED installation to safely treat serious diseases, including COVID-19, the university's press service said.

The installation, created by graduate students at MEPHI's Institute of Engineering Physics for Biomedicine, Artem Shabanov, Denis Glechik and Alexei Nekhoroshev, is based on the photodynamic method, where the body's large surfaces are irradiated with red spectrum light. The method was previously developed at the institute to diagnose and treat tumours, Victor Loshchenov, head of Department of Laser Micro-, Nano- and Biotechnologies at MEPHI, said.

"This is one of the newest therapies using photosensitizers. They are injected into the patient's body, where they are captured by viruses and, under the influence of radiation, kill the virus. Photosensitizers deactivate the immunocom-

petent cells responsible for the cytokine storm, thereby avoiding the immune system's deadly reaction to the virus. The photodynamic technique is highly efficient and has a minimum number of side effects; it practically doesn't lead to complications», he said.

According to Loshchenov, until today there has been no installation that would allow irradiation with sufficient power and energy density without harming the patient. The existing systems had a power of 1.5 W, but this was not enough: it was necessary to increase the power by almost 10 times, at least to 12 W.

"The work was not easy: institutes and laboratories were closed because of the pandemic(link is external). The undergraduates moved the 3D printers to their dorms, everything was discussed online. They not only developed but also manufactured 12 W devices, in accordance with strict medical safety requirements.



The devices were immediately installed at Sechenov First Moscow State Medical University», Victor Loshchenov explained.

He said that more than 40 COVID-19 patients have received the new treatment. Right after irradiation, the patients showed an increase in oxygen saturation, the pain in the lungs disappeared, and their sense of smell returned. This group of patients recovered much quicker than those patients who did not receive radiation.

"In the Institute of Engineering Physics for Biomedicine's biomedical photonics master's programme, we teach to use laser, spectroscopic and video fluorescent technology in biomedical research as well as in treating patients. We train developers of new diagnostic methods and high-tech medical devices to treat and prevent cancer, autoimmune and viral diseases, atherosclerosis, and antibiotic-resistant infections. We also train specialists in the diagnosis and treatment of

patients with our devices», Viktor Loshchenov said.

He added that today, hundreds of high-tech medical devices developed in the laboratory of GPI, where the Institute of Engineering Physics for Biomedicine is located, and where lectures and practical classes are held, have been installed in Russian medical institutions(link is external). At the same time, there is an acute shortage of specialists who would be able to use all their capabilities in their work.

REGIONS

STUDENT OF SarFTI MEPHI BECOMES WINNER OF IT-HUB «DIGITAL BREAKTHROUGH» SEMIFINAL

The Digital Breakthrough All-Russian team competition is one of the flagship projects of the presidential platform "Russia – Land of Opportunities".

September 12-14, Alexandra Tsvetkova has represented SarFTI MEPHI at the regional semifinal of the Volga online IT-hub «Digital Breakthrough». She is a 2-year undergraduate student of the Faculty of Physics and Technology; her specialization is applied mathematics and informatics. 142 IT teams took part in the semi-finals of the Volga IT Hub.

The participants were faced with nine urgent applied problems in digitalization, AI & Big Data, Edtech and web development.

Each case is a real problem situation for the largest commercial and government organizations. Participants received 48 hours of coding, remote communication with top experts, gifts and merchandise from competition partners and a prize fund of three million rubles.

The Alexandra's team consisted of five people; it included also representatives of Tatarstan and the Samara region. They all received diplomas of winners.

"In the semi-finals of the Volga IT hub, we took 4th place, and this allowed us to go to the final and compete for the total prize fund of the competition - 50 million rubles", noted Alexandra.



FIGHTERS OF FREYA CONSTRUCTION BRIGADE HELP FARMERS

This year girls from construction brigade «Freya» SFTI MEPHI have helped the farmers of farm «Grigorievskiye Sady» together with representatives of other student construction and peda-

gogical teams of the Chelyabinsk region. The replacement of work at the interregional student construction "Peaceful Atom" occurred due to the coronavirus pandemic.

CITIUS, ALTIUS, FORTIUS!



BITI STUDENT WINS GOLD MEDALS AT RUSSIAN ATHLETICS CHAMPIONSHIP

Russian Athletics Championship among juniors was held in Bryansk.

Valeria Volovlikova has already shown excellent results at the all-Russian competitions. At the Championship of Russia, two gold medals were won by her with a lead over her rivals. In the long jump competition, Valeria showed the result of 6 m 14 cm, and the next day in triple jumps - 13 m 07 cm. Valeria

performed brilliantly taking part in the Russian Cup in Athletics immediately after the Championship. Fifth place in the Cup is also an excellent result, because we had to compete not only with juniors, but also with an older age category, which was represented by the current leaders and winners of the World Championships, Europe, and the Olympic Games. The gap between them was very small.

MEPHI TEAM WINS FIRST PLACE IN OVERALL COUNT AT XXXII MOSCOW STUDENT SPORTS GAMES

On September 20, the International University Sports Day Festival was held in arena of NRU MGSU.

In the program of the Festival was the ceremony of awarding the winners and prize-winners of the XXXII Moscow Student Sports Games. MEPHI confidently took the first team place in its group of universities. MEPHI

became the winner of the XXXII MSSJ in such disciplines as hiking and skiing tourism, as well as a bronze medalist in armwrestling and polyathlon (3rd wrestling with cross-country skiing).

MEPHI athletes took part in the winners' parade and proudly accepted congratulations and the Cup, as well as diplomas in all nominations.

