



World of **MEPhi**

January '20



CELEBRATE
STUDENT DAY
WITH US!

NEWS

STUDENT DAY AT MEPHI!

January 25, MEPHI celebrated Student Day on a large scale. The celebration was attended not only by students but also by students of the MEPHI Pre-University.

Students of 10 grades were awarded grade books: there will be recorded the results of university courses. "We hope that you will have only excellent marks!" – said Andrey Pastukhov, the director of Lyceum No. 1523. Awards were also presented to the best participants and winners of national and regional competitions.

Theatrical performance "Tatyana's Day" — with dances, songs, contests, and sports — took place at the Tsar Alexei Mikhailovich's Palace in Kolomenskoye. Lyceum students of the 8th grade prepared a dance flash mob for the holiday. At its final, the guys lined up in letters "MEPHI". After the performance, students took part in activities: they played football, threw darts, competed in tug of war, and orienteering. The field kitchen was deployed in Kolomenskoye and treated everyone with tea and sweets. There were also horse riding, dances with songs.

Students and students of the Pre-University with high achievements in educational, scientific, and extracurricular activities during 2019 were awarded in the university assembly hall. Students from MEPHI branches joined the celebration by video link.

All students were congratulated by the First Vice-Rector of MEPHI Oleg Nagornov. "I hope that all students have passed

the session by today. I wish you success in your studies and life!" - he said. Oleg Viktorovich also congratulated the students who achieved outstanding results in professional skill competitions. In 2019, MEPHI students achieved outstanding success in World-Skills championships, in industry competitions of the State Atomic Energy Corporation Rosatom, in the All-Russian Olympiad «I am a Professional» and in the prestigious TeMP competition.

Vice-Rector of MEPHI Elena Vesna presented the letters of gratitude to students-winners of the olympiads. "Wonderful guys gathered in this room. You are all talented in various fields of activity. I had the honor to present letters of gratitude to winners of the international student competitions. For example, the outstanding result — the highest in recent times — was the victory at the AI Challenge competition during the largest information security conference Hack In The Box in Abu Dhabi. It was the world's largest competition for artificial intelligence in cybersecurity. Our students won at the international student physics Olympiad — The University Physics Competition. It is also taken into account in international university rankings. Students defended the honor not only of their university but also the honor of Russia in these prestigious intellectual competitions! Many thanks and congratulations to all the students who won the All-Russian Subject Olympiads. It is a huge contribution to the brand promotion of our university," said Elena Vesna.

The entertainment program was prepared for guests of holiday: a quiz about Nobel laureates, an intellectual competition from Technoatom, a blitz tournament on board games, a lottery, photo contests on social networks, performances by the vocal team QUANTO DI STELLA and MEPHI brigade team, a creative workshop for manufacturing wooden badges and magnets. The photo zone "Magic Book" was very popular among the participants of the event: students could create their own exclusive book with foto and then watch a short cartoon. Traditionally, all guests of the holiday — more than 400 people — were treated to cotton candy, popcorn, and non-alcoholic mulled wine.



YOUTH AND SCIENCE

MEPHI STUDENTS MADE TOKAMAK

MEPHI students made tokamak "MEPHIST" for research in the field of controlled thermonuclear fusion. It stands for «toroidal chamber with magnetic coils». Soviet physicists of the 20th century were at the forefront of tokamak's building.

Last year, the young researcher at the Department of Plasma Physics of MEPHI Stepan Krat proposed creating a small research tokamak at the university to continue research on the interaction of plasma with the walls of the reactor. The idea was supported by the leaders of the Institute of Laser and Plasma Technologies of MEPHI and the university administration, who allocated the first funds for the purchase of vacuum equipment and some of the materials. The university's initiative found also support in the Scientific and Technical Council No. 6 of Rosatom; this work was included in the state corporation's sectoral plan.

"The basis of this project is the work of Gennady Vorobyov, a scientist and engineer from St. Petersburg who has extensive experience in creating small tokamaks. Employees of the Kurchatov



Institute Research Center A. Melnikov and D. Ivanov also participated in the creation, said Professor Valery Kurnaev, head of the Department of Plasma Physics of MEPHI. — Our tokamak, first of all, is a training and demonstration one; its main task is to train personnel in the field of controlled thermonuclear fusion for large Russian installations and the international experimental thermonuclear reactor ITER. Many years of

experience have shown that active independent scientific work of future researchers during training is important. By the way, all interested scientific and educational organizations, students and graduate students from other Russia universities can take part in our research with help of our tokamak. In addition, this new, reliable operating unit will be used to solve a number of urgent scientific and technological problems:

accelerated development of technologies for operating plasma-oriented materials and development of methods for analyzing plasma interactions with them, studying the physics of plasma confinement in a spherical tokamak, developing high-frequency technologies, and others».

Students and graduate students of the department under the guidance of S. Krat joined in the work on tokamak from the very beginning.

The first version of the tokamak - MIFIST-0 (spherical tokamak) was created after manufacturing and successful testing in September of a simplified version of the discharge chamber. MIFIST-0 is intended to verify the solutions incorporated into the project and to acquire initial experience in its operation. Students helped to manufacture the structural parts and to do tokamak diagnostics.

One of the most difficult stages in the creation was the manufacture and synchronization of power systems for the electromagnetic system's main elements — a toroidal field' solenoid, inductor, and poloidal coils. At this stage, students of the Moscow Institute of Physics and Technology, who had practical training at the Kurchatov Institute Research Center, helped to obtain currents in the plasma.

According to V. Kurnaev, this tokamak is small in size, simple in design and original in technical solutions. Despite this, a small spherical tokamak will open up new opportunities for improving training in one of the most complex and knowledge-intensive areas - plasma physics and controlled thermonuclear fusion.

MEPHI TEAM WON BRONZE MEDAL AT UNIVERSITY PHYSICS COMPETITION

MEPHI team won a bronze medal at the International Student Olympiad "University Physics Competition".

Team included students of the Institute of Laser and Plasma Technologies Arseny Berezin, Yegor Sozinov and Nikita Muzhichkov, under the guidance of Associate Professor of the Department of General Physics Alexei Matronchik.

This Olympiad is the only physics Olympiad that the leading international university rankings take into account. A feature of Competition is the lack of a single correct solution. MEPHI students designed a roller coaster. They needed to offer the most exciting three-dimensional trajectory, not forgetting the safety of visitors.

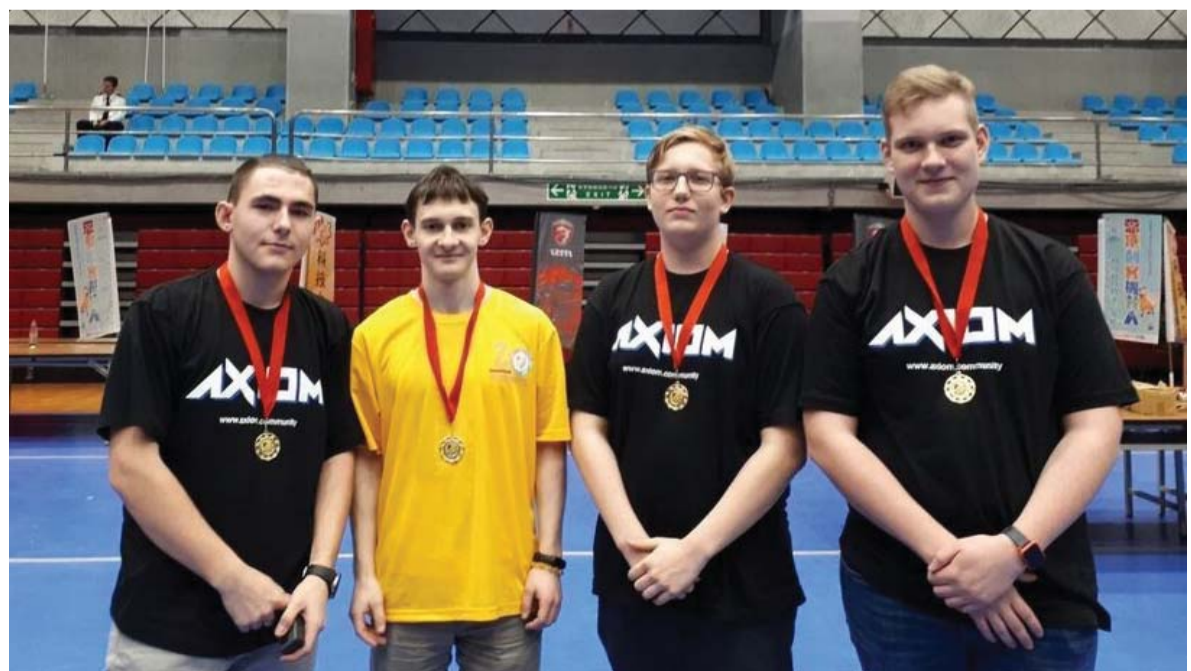
STUDENT OF MEPHI LYCEUM - PARTICIPANT OF OLYMPIAD IN TAIWAN

Egor Bakay is a 10th grade student of the MEPHI Pre-University (lyceum No. 1511). Egor spoke about his participation in the PowerTech Olympiad.

«PowerTech is an annual international competition of young design engineers, which takes place in Taipei (Taiwan). In a short period of time, in just three hours, teams must create mechanisms to ensure the robot movement. One robot needs to walk, another — to ride, a third — to crawl. Our task was to make them as good as possible from the available materials. All robots had to pass a judicial assessment.

I participated with team from Vladivostok. They invited me because they have problem: there was no team-member who knew how to create the hardest prototype — crawling robot. In Olympiad participated more than 200 teams, seven of them was from Russia. Our team entered the top 30, and among the Russian representatives became the winner.

What is about my future plans? I continue to study at the Lyceum, preparing for admission. Now I am engaged in a project to create weather stations for a mobile eco-monitoring system».



REGIONS

STUDENT VITY MEPHl – WINNER OF VOLUNTEER OF YEAR CONTEST

On International Volunteer Day, the best volunteers of the year were honored in Volgodonsk. Svetlana Tsyba, the deputy head of the Volgodonsk administration for social policy, awarded the best volunteers of the city, including stu-

dents from the technical school and institute VITI MEPHl.

The winner the head of mentors, student of VITI MEPHl Vladislav Lankin. Ivan Snipich, a student at the VITI MEPHl, received a diploma of the II degree in the category «Student Volunteering». Student

of VITY MEPHl Nadezhda Kurapova was awarded a diploma of the III degree in this category.

Volunteers of VITI MEPHl are very active. In addition, older students involving the younger generation of students into the volunteer movement.



XI SCIENTIFIC SESSION “DAYS OF RUSSIAN SCIENCE” AT TTI MEPHl

On the eve of Student's Day at the TTI MEPHl, the XI university scientific session «Days of Russian Science» was held.

The scientific society TTI MEPHl organized the presentation of students'

research projects in the fields “Automation of production processes in mechanical engineering”, “Innovative economy and technological enterprise”.

The speakers presented their work to the expert commission.



GRADUATE OF SARFTI MEPHl REACHED SEMIFINALS OF COMPETITION “LEADERS OF RUSSIA”

About 200 thousand applications from all regions of Russia and 64 countries were submitted to the competition “Leaders of Russia 2020”.

Ivan Kanygin is a researcher at the Institute of Theoretical and Mathematical Physics (ILFI) of the Russian

Federal Nuclear Centre “All-Union Research Institute of Experimental Physics” and a graduate of the SarPTI MEPHl. He was selected among 233 thousand applicants and was one of the three thousand semi-finalists of the competition “Leaders of Russia”.

PROFESSIONAL TESTS AT SPTI MEPHl

During the school holidays, the first professional tests in 2020 “Who are you in the nuclear industry?” were held at the Snezhinsky Physical-Technical Institute of MEPHl. The event is held for the third time.

The event was attended by over 60 schoolchildren and 25 teachers and parents from eight cities, including the cities of Rosatom presence, the regional centers of Chelyabinsk and Yekaterinburg. There were guys from all six schools of ZATO Snezhinsk.

Professional tests passed through six demanded competencies: «CAD Engineering Design», «Electronics», «Prototyping», «Milling on CNC machines», « Network and System Administration», «Mobile Robotics».

Competition lasted 134 academic hours. Participants gained new knowledge and skills, advanced in familiar competencies, received detailed consultations from leading experts, including winners and their mentors of national and industry championships. Schoolchildren participated in lectures, laboratory workshops. They took part also in the scientific and practical events of the Information Center for Atomic Energy of the city of Chelyabinsk. In particular, they made and tested a chair made of ... newspapers (the most sturdy copy withstood the weight of three people at the same time), and also played the intellectual game «Bet», dedicated to issues of science and technology.

