



World of MEPHI

February' 19

**HAPPY
STUDENT DAY!**

THE NATIONWIDE CONTEST OF SCIENTIFIC WORKS BETWEEN SCHOOLCHILDREN "JUNIOR" WAS HELD IN MEPhI



Did you know that smart sneakers are already a reality, that electricity can be obtained from the mud in the nearest puddle, and a cart at a supermarket can have an artificial intelligence and be able to answer questions? This is what you could find out at MEPhI from 1st to 3rd of February. During that period, the nationwide contest of scientific works between schoolchildren «Junior» was held at the university.

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This year the works came from 35 subjects of the Russian Federation: from Kaliningrad to Krasnoyarsk, from Murmansk to Sochi and Crimea, as well as from Kazakhstan, Ukraine and Belarus. 301 projects out of 548 submitted were selected for the final of the competition (in 2018, 245 projects out of 469 submitted were selected for the final). This indicates a significant increase in interest in the competition and an increase of the level of the submitted projects.

In his welcoming speech, the rector of MEPhI Mr. Strikhanov stressed the importance of the competition, especially the project activities. «You are the representatives of the generation that will determine how our country and the world will develop. Besides the knowledge of the subject, it is necessary to know the docking disciplines, to constantly improve, to learn several languages», he said in his address to students. «Junior» is a national platform for the selection in the international competition of scientific and engineering creativity of the students Intel ISEF (Intel ISEF), which annually attracts more than 2 thousand students from more than 100 countries. Every year 6-7 «Junior» winners are included in the Russian team at Intel ISEF. During the 21-year-old history of participation

in Intel ISEF, juniors won 87 awards. At the end of the speech, the rector wished the participants good luck, to win and to enter the leading universities of Russia and the world.

On behalf of the State Atomic Energy Corporation Rosatom, the head of educational programs at the innovation management unit of Rosatom Mr. Sushkov said parting words to the students: «Rosatom is a knowledge corporation, and we understand by this that it is both the key and the result of our success in the past, the present and the future. That is why it is so important to us that new minds and restless hearts come to the world of physics engineering». According to Mr. Sushkov, «Junior» is the best tool that leads to science and helps better understand the interests and motivation. «I wish you a productive work, new ideas, exciting experiences, interesting encounters and all the best», addressed the participants Mr. Sushkov.

The long-term sponsor of the contest is a well-known manufacturer of software products 1C Company. The head of the federal project 1C-club of programmers Mrs. Semenova noted that the competition always brings special attention to itself: «This is the best project olympiad for schoolchildren. Projects are important not only for science, but for business. It is important to be able to work in a team, to interact with each other. Participate, gain experience, discover new opportunities, discover yourself and, of course, win».

In addition to the State Atomic Energy Corporation Rosatom, the competition is supported by a number of large corporations, including JSC Ruselectronics. The director of external Communications for JSC Ruselectronics Mr. Brykin in his speech emphasized that in the future it is important for schoolchildren to draw the right conclusions when developing in a professional way: «I hope that you will connect your life path and professional path here in Russia. It is important, necessary, interesting and informative». Mr. Brykin wished the children luck in this competition and professional success in communication with key employers representing the leaders of the high-tech sector of the Russian economy - Rosatom, Roskosmos, Rostec and Ruselectronics.

This year the competition turned 22 years old. There are many glorious pages in the history of «Junior». The permanent leader of the competition panel, the head of the department of computer science and management processes, Professor Modyaev talked about the success, traditions and cri-

teria for the competition assessment. «The project is the result of your intellectual activity, and we look at this product at the angle of problem solving, the relevance of the statement, the novelty of the proposed solutions, the amount of work performed to implement the project, how experimental facilities and computer equipment were used to process results' interpretation, and how you prepare a presentation». According to Mr. Modyaev, the value of such conferences is in networking, professional communication, and exchange of ideas and opinions.

Mr. Muravyev, a member of the contest's organizing committee, an associate professor of the Department of Theoretical Nuclear Physics spoke about the results of this year's selection campaign, the rules of the competition, about important recommendations and tips.

The contestants presented their projects in front of the panel, which traditionally included not only representatives of MEPhI, but also other leading Moscow universities and Russian Academy of Sciences employees. This allowed to objectively, comprehensively and skillfully assess the work of schoolchildren.

Some thesis defenses took place in a remote format: students of the Nizhny Novgorod region presented their projects and wrote the olympiad on the basis of the R.E. Alekseeva Nizhny Novgorod State Technical University. The level of submitted projects is very high, which indicates a growing interest of Russian youth in engineering specialties. For example, Maxim Lyovkin and Alexander Pinchuk, 10th grade students of the MEPhI Pre-university, presented the BIGIPIS project — smart sneakers and a mobile application. Their goal is to simplify and secure navigation on the ground without the use of distracting devices. The principle of their shoes is very simple: if you need to turn left, then the left shoe vibrates, to the right - the right one. Your hands will not freeze in the cold while you are holding a phone and you will look kind of cool.

Under the guidance of ISIC MEPhI researchers, the 11th grade students - Natalia Ivleeva and Inna Larina completed the «Multifunctional Orientation System» project, which helps blind or visually impaired people navigate and

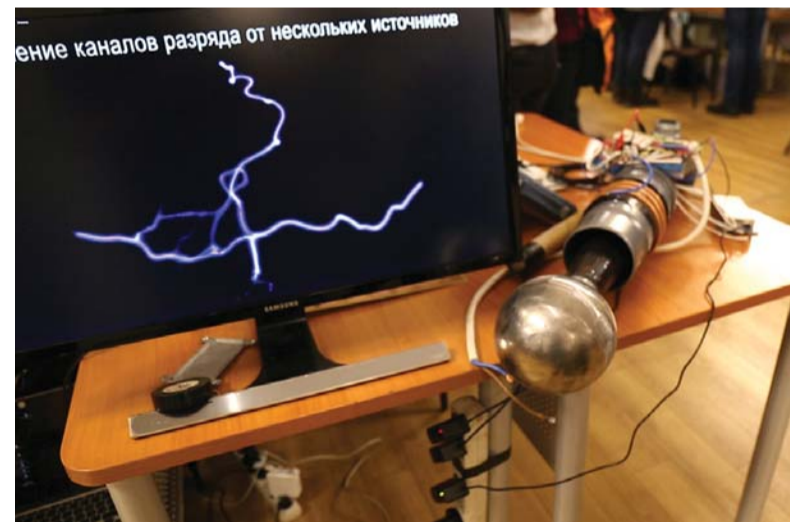
move in an unfamiliar space, identify objects surrounding them, and get to the destination.

The 11th grade student Pyotr Shumanov of school №1533 told us why he created a smart arranger: «The purpose of my project was to create an application that would allow guitarists to automatically generate accompaniment to their parts. With the help of the app, the musician can create different arrangements for the song by just clicking a few buttons. Different machine learning methods were used to solve the problem. This significantly distinguishes this project from its analogues, as it allows you to teach the program to compose batches for any instrument in any genre.

The winners and prize-winners of the contest were congratulated and awarded with diplomas, valuable prizes and certificates by the heads of MEPhI institutes, as well as the partners of the contest.

It should be noted that the «Junior» competition is included in the list of olympiads for schoolchildren in the 2018-2019 academic year, so the winners and prize-winners of the competition will be able to receive significant benefits when entering Russian universities.

Based on the results of the works' presentation, the Organizing committee of the contest determined the Russian national team for the international competition of engineering creativity of schoolchildren Intel ISEF (May 12-17, 2019, USA). It included: Natalia Ivleeva and Inna Larina (Moscow, Lyceum No. 1511, MEPhI Pre-University); Yuri Batrakov and Ivan Marayev (Moscow, Lyceum No. 1511 of MEPhI Pre-University); Igor Mezentsev (Moscow, Marshal V.I. Chuikov School); Mikhail Boym and Vasily Mitorich (Moscow, Marshal V.I. Chuikov School).



OUR ALUMNI

THE MEPHI GRADUATE ABOUT HER CHOICE, DUTY AND MISSION IN LIFE

Graduate of 2002 Department of Materials Science at MEPHI (Obninsk), Associate Professor of Laser and Plasma Technologies Department, Mrs. Antoshina Irina Alexandrovna spoke about her scientific and teaching activities, relations between students and teachers and other further prospects.

It is interesting to follow the success students achieve after finishing MEPHI. Many are becoming first-class engineers, scientists or public figures. These are the people that have found their place in life and feel comfortable in their professional field.

Antoshina Irina Alexandrovna, a 2002 graduate of the Department of Materials Science at MEPHI (Obninsk), a senior lecturer of the Department of Laser and Plasma Technologies, spoke about her scientific and teaching activities, relations between students and teachers and further prospects.

- Why did you decide to engage in teaching activities? Who influenced your choice?

- I decided I wanted to teach at the senior postgraduate courses. My supervisor, professor, and doctor of physical and mathematical sciences Khmelevskaya Vita Sergeevna played a major role in my life and her personal example instilled in me this love for my future profession. She is an interesting and versatile person with extraordinary energy, and, simply, a talented teacher. It was Mrs. Khmelevskaya who saw the potential in me and advised me to pay attention to the teaching field. There was no reason not to trust

her, and I decided to try myself in this area. At the Department of Materials Science, I began a teaching practice - work with students. Certainly, for the first time it was very nerve-racking, but interesting to speak in front of a huge audience. You stand in front of them, look into their eyes and realize that they listen so carefully just to you, and it's up to your competent explanation, whether they understand the material or not and whether they will be able to use it properly in the future. Every night I had to adjust the program and prepare for the upcoming lesson. But I coped well with all the difficulties and received good references from colleagues.

- What attracts you most in this profession?

- I like the fact that you can be creative in your profession. You try to see the personality of students, understand them and make them interested in new material. It's a pity that there is some limitation to the program, but a lot of things can be explained in different and accessible forms to make it interesting for the students to study and get the necessary knowledge. All the laboratories of the laser and plasma technologies department are equipped with modern high-tech equipment, on which our students can conduct experimental scientific activities in the framework of research and graduate qualification works.

- What scientific questions have you been working on and what are you working on now?

- My PhD thesis was devoted to structural transformations in amorphous alloys under



various kinds of influences (thermal, radiation and laser). Recently I have been studying the influence of megaplastic deformations on the structure and properties of amorphous metal alloys.

- What do you remember when it comes to the time of your studies at the institute?

- My student years will always have a special place in my heart. This is the time of new discoveries for my friends and myself. I still maintain good relations with all my classmates, we meet every year for graduation parties, rejoice at each other's success and support each other in any situation. I really hope that this tradition of meeting all together will continue for years to come.

- What is the difference between when you were a student and the students now?

- Now the university has become a wide platform for students - studies, scientific work, active creative life, but it is very pleasant to realize that the main traditions of our university are preserved to this day. MEPHI Obninsk values its history and its graduates.

- What would you like to wish the current students?

- I wish all students to believe in themselves, in their own abilities and power, to strive for dreams, overcome difficulties and keep all the necessary knowledge in their life. Let the student years be remembered for bright emotions, interesting events and people.

INTERNATIONAL COOPERATION

A JAPANESE STUDENT - ABOUT LIFE AND STUDY IN RUSSIA

Kodai Fukuda, a student at the Tokyo Institute of Technology in Japan came for a three-month internship at the Nuclear Engineering Computer Modeling Laboratory at MEPHI under the supervision of Deputy Director of the Institute of Nuclear Physics and Technology Mr. Tikhomirov.

Kodai has always wanted to try and study abroad, and the number of credits he was supposed to have by the time he graduated from the university played an important role. MEPHI was able to provide Kodai with the necessary training and loans, so he decided to participate in the exchange program.

According to the student, many people want to participate in exchange programs with universities in the U.S. and Europe, and Russia is not the most popular area. Kodai learned about MEPHI from his professor, who convinced him that education at the university is at a very high level, and laboratories are equipped with new equipment that corresponds to the latest trends.

The courses were in English. Kodai noted that he had no difficulty learning because students and teachers spoke English well and he could always talk to them.

«Здравствуйте», «да», «нет», «как дела?», «спасибо», «пожалуйста», «пока», «до свидания»- the only words and expressions that the Japanese student learned during his stay

in Russia, and the phrase «это пожалуйста» was learned specifically for the MEPHI canteen.

Kodai, together with his MEPHI classmates and students from Japan who study at other universities, visited many museums, theaters, cultural heritage sites and other attractions in Moscow.

The student liked living in Russia, but he notes that if he had stayed longer than three months, he could have had difficulties, the most obvious being that most people outside the university do not speak English. However, he emphasizes that he has always been treated well in the country, and if he has had any questions, despite the language barrier people would try and help him. Among the advantages of living in Russia, Kodai notes the cheap transport and food. He also says that it cost him «almost nothing» to live in Moscow, while a student pays about 25,000 roubles a month for a room that three times less in size in a university dormitory in Japan.

«I'd love to stay here a little longer if I could at least sometimes taste real Japanese food, I miss my cuisine very much. I've been to Japanese restaurants in Moscow, it's delicious, but it's not the same,» said the student. Kodai would have agreed to move to Russia if he had been offered a job here, but he also notes that he would have to get used to Russian culture, mentality and workflow. «Here people talk so



honestly» was the most obvious difference in cultures he saw. «In Japan, everybody smoothes the edges, nobody talks about mistakes directly or criticizes them. On one hand, such honesty can offend a person, but on the other hand, it clearly helps you to see your growth and lets you know what else you need to work on,» says the student.

There are also differences in the learning process, for example, at MEPHI, students in labora-

tories discuss the process in parallel with their work, while there is silence in Japanese laboratories. The unusual noise initially distracted the student, but after a while he got used to it, and this is what he considers to be a very important skill, because in many companies the applicant for a job is required to be a multi-tasker and be able to work in different conditions.

Another observation Kodai made is that in MEPHI labora-

tories people of different ages communicate equally, there is no difference between juniors and seniors, students and employees, so if a question arises in the process of work, it can be asked without any hesitation or discussed with students. In Japan, even if you want to ask a senior student a question, you have to do it in a special way, given his or her age. The model of communication with colleagues that Kodai saw at MEPHI was much better.

OUTSIDE THE CLASSROOM



THE DAY OF MEPhISTYCAL STUDENTSHIP

An ideal opportunity to cheer up during the finals' week is to celebrate on January 25th, the Student's Day! The holiday has its roots in the XVIII century, when Empress Elizabeth in 1755 signed a decree establishing the Moscow University. «Tatiana's Day» was initially celebrated as the Birthday of the Moscow University, and later - in 2005 - by the decree of the President of the Russian Federation on January 25 officially became the Day of Russian students.

The «mephistycal» celebration began with the awarding of credit diplomas to the students of the MEPhI Pre-University. The event took place in the theatrical choir of the Palace of Tsar Alexei Mikhailovich. A variety of kind and warm words from class teachers to the students were said that day. Some lyceum students had their final exams in the upcoming days, so they wished them good luck. Then the students went to the main entrance of the royal palace, where there was a theatrical performance about

the Student Day. It was followed by a dance flash mob from the students of MEPhI Pre-University. Immediately after the spectacular dance, the lyceum students went to check out the most interesting activities prepared by the university in Kolomenskoye.

Most of the festivities took place near the walls of the Palace of Tsar Alexei Mikhailovich. From 10 a.m. the guests were invited to take part in various sports games and competitions: football, volleyball, basketball, hockey, rugby, arm wrestling, sambo and orienteering. The guests could also try their hand at tug-of-war and take part in the Russian sport competition «Happy Starts». And that's not all! Numerous joking contests, horseback riding and other surprises awaited the guys. For the participants of the event in Kolomenskoye, a field kitchen was arranged, where everyone was treated to tea and sweets.

By lunch, the celebration moved to the walls of MEPhI, where there was a concert and entertainment program in the reading room and on the first floor of the main

building: a scientific show, an alley of national cohesion, intellectual competitions, entertainment games and giveaways. As part of the celebration, MEPhI in-

stitutes held a quest for schoolchildren, and the Department of Military Training created a program as well.

Lyceum students and students of MEPhI told us how

they remembered the holiday with horseback riding, slot machines, nitrogen ice cream, cotton candy, popcorn, treats from foreign students, as well as many prizes and gifts.



OUTSIDE THE CLASSROOM

Maria Ignatova, 3rd year, Institute for Financial and Economic Security:

The Student Day is celebrated annually at MEPHI, but it seems to me that this year the level of the event has risen drastically. For example, this time there was a very cool concert program: not just some background music, but people actually performed, sang songs and things like that. At the event, there are stands of student communities and everyone had their own thing. Today there is a big lottery, where you can possibly win great branded gifts. To do this, you need to check as many stands as possible, participate in competitions and collect chips - «mephips», which can then be exchanged for cool gifts. It's great that so many people have arrived this year, because the term exams have just ended, some people are going home, some are preparing for exams and retakes, and but here is so much fun!

Alexey Pashkov, 11th grade, Lyceum No. 1523:

- This is the first time I have ever been to such an event, the scale is impressive! It is nice to see such a friendly mephistical community. I saw MEPHI from a new perspective! I used to think that MEPHI only deals with science, and there is no time for student life, but now I realized that this is not the case! Here they take into account the wishes of students and organize such events for them with numerous contests, gifts, cotton candy, popcorn and vending machines! Now I want to be admitted here even more! By the way, MEPHI is the only university where I am going to apply!

Maxim, 2nd year, Institute of Nuclear Physics and Engineering:

- The term exams are over, I came to Kolomenskoye to celebrate it! Now I am standing in line for chess, I think it is a great and unusual experience to play chess at -16 degrees outside. I have already played darts and shot with a crossbow, won some candy that really boosted my mood!

Oleg Chereda, 10th grade, Lyceum № 1523:

- I liked the event very much: interesting contests, live music, and food. Together with a friend, we collect «chips - mephips» to exchange them for a thermo mug to drink tea in the lyceum. Student Day at MEPHI is a great event, which I will not forget for a long time!



A NANOTECHNOLOGIES PIONEER HAS INCLUDED MEPhI STUDENTS IN THE DEVELOPMENT OF “SMART” MEDICINE

In recent years, the training of specialists in the field of nanotechnology and nanobiomedicine has begun at leading Russian universities. What are the applied problems that students solve today? How important are these studies for the development of medicine and technology? This was spoken about by Anton Vojtik, a pioneer of laser nanotechnology, holder of many scientific and professional awards, professor at the Czech Technical University in Prague and the Institute of Biomedical Engineering at MEPhI.

- Professor Vojtik, your name belongs to a «Small Nobel Prize» in the field of nanotechnology, the Vojtik-Henglane Prize, and it is not surprising that you are invited to give lectures at various universities around the world. However, at MEPhI, you have recently moved on to practical training for students and postgraduates. Why?

- Lectures only give the theoretical knowledge, but without practical training there is no real benefit from them. Therefore, we are starting to work with future scientists in the laboratory. I show them how to work with a new technology that can be applied in biomedicine. The guys and girls study the methods of obtaining nanostructures, all the features and modes of synthesis, separation and purification.

Now we are trying to prepare different nanoparticles on which other small particles or molecules of pharmacobiological substances can be planted. Such structures play the role of a truck that carries “cargo” - a medicine - through the human body.

In order for our truck to move, we must control it using an electric field, a magnetic field or a laser beam. For this, nanoparticles must be smart. After all, they are so small that you can't even move them with tweezers. We had to

learn how to prepare particles with magnetic or paramagnetic properties, so both of them could be used in biomedicine. There is a theoretical and a technical problem - how to make ferromagnetic particles that are attracted to each other? There is no magnet stronger than iron in combination with cobalt, nickel or neodymium, but these metals are toxic to the body. To make these particles non-toxic, we put them in a teflon ball. Teflon does not dissolve in alkali or acid, does not oxidize in the atmosphere, maintains stability for years, and is the best chemical polymer.

Thus, our «truck» is in Teflon. The resulting particle becomes hydrophobic and floats like a ball on water, but so that it can plunge into the blood and convey there the biological systems we need. We cover these teflon balls with a layer of a hydrophilic water-soluble polymer.

- What can you do with such a smart system?

- We can transport the drugs through the human body wherever we want to go. For example, we can attach special molecules to the «truck» that breaks down fat in the vessels and prevents them from clogging up. After all, our nanoparticle is only about 100 nanometres, it can pass through the most difficult places and carry a molecule of enzyme that breaks down fat. Just a couple of hours after its use, the vessel's permeability is restored. Then the nanoparticle is removed from the body through a catheter with a magnet.

We can attach antibodies - biological molecules that selectively destroy certain pathogens to the surface of nanoparticles' «trucks». For example, there are molecules that react to the HIV virus and nothing else. Nanostructures come into the bloodstream and the antibodies capture the virus. After that, these particles are removed from the body with a magnet, and the blood remains purified.



The results of our experiments in collaboration with clinics have shown an 18% reduction in plasma virus concentrations in one procedure. Consecutive performance of several procedures gives efficiency up to 50%. We are now working to increase the efficiency of the procedure by up to 40% at a time.

- Can your systems be used only in biological systems?

-No, of course not. Our teflon coated particles can be used instead of oil lubrication for mechanisms. Take a gyroscope and some of the bearings in a spacecraft, for example. They spin at several hundred thousand revolutions per minute and they need lubrication. But it is not possible to use oil lubrication in this case, because in the weightlessness, the oil droplets will spread everywhere. And our magnetic particles will not fly away and will reliably perform their work as lubricants.

Also, our particles help to maintain the air-tightness in steam

generators, which rotate under the influence of superheated water vapor and convert its energy into electricity. Under pressure and temperature conditions, preventing steam from escaping from the system has been a major technical challenge so far.

Now let's look at cars. They have buffers that dampen the vibrations of the body on a bad road. These buffers use oil, which reduces the residual piston vibrations in the cylinder after passing an uneven section. We make a magnetic fluid out of nanoparticles, its magnetic force is regulated by an electric field, and works very well in buffers instead of oil. By the way, magnetic fluids are also used against energy loss in transformers, which are used to transmit electricity thousands of kilometers away.

- What else will your students do?

- For example, laser ablation. If you point the laser beam at a solid body, such as silver or gold, and

heat it up very quickly to a few thousand degrees, you can evaporate the surface layer of metal. The cooling of the resulting steam produces nanostructures of silver or gold. We will attach these nanostructures to our truck» and try to do something with this system.

Everyone knows that silver kills bacteria. We can get silver nanostructures that do this efficiently.

For example, with the help of our colleagues in the Czech Republic, we tested anthrax bacilli, and it turned out that our drugs kill them with 99.999% efficiency. But it's an awfully toxic bacterium, a real bacteriological weapon: if you put one gram of bacilli in the atmosphere, 100,000 people will die in 24 hours. And our nanostructures can be used against contamination if you apply them to a filter or on a protective mask.

We will continue to experiment with the activity of our silver and gold nanostructures against other bacteria. I hope our research will help develop biomedicine.

THE SUN AND NANO-LIQUIDS: UNIQUE POWER-SUPPLY PLANT IS BEING LAUNCHED AT MEPhI



MEPhI specialists, together with colleagues from the University of Bergen (Norway), have started an active phase of preparation for the launch of the unparalleled solar plant at MEPhI, which generates electricity by boiling nano-liquids.

Specialists from MEPhI, together with colleagues from the University of Bergen (Norway), have started an active phase to prepare for the launch of the unparalleled solar plant at MEPhI, which generates electricity from the boiling of nano-liquids.

A solar collector that is a part of a developing solar nano-liquid steam generating plant.

Nano-liquids are suspensions of water and nano-sized particles of carbon or metal oxides. The first known studies of nanofluids appeared no more than 5-7 years ago,

and now the whole world is studying their applications in the energy sector.

In 2017, a group led by Boris Balakin, Associate Professor of MEPhI and University of Bergen won a grant from the Russian Science Foundation, within the framework of which they began to study the possibility of using nanofluids in power plants, as well as create a working prototype of a solar electric power generator.

“The novelty of our research is that the use of nanofluids gives a significantly greater efficiency in the conversion of solar heat than conventional fluids. We build a plant that converts sunlight first into the thermal energy of a nanofluid, and then with the help of a turbine we turn it into electricity. Not a single scientific group has begun such research

in the world”, said Pavel Struchalin, one of the developers, an assistant at the Institute of Nuclear Physics and Technology, MEPhI.

According to the young scientist, the operation of the device is similar to the principles of generating electricity at plate-shaped solar power plants. The main part of the installation is the solar collector, and its efficiency will be comparable to that of simple photovoltaic solar cells, but the efficiency and service life of the equipment will be higher.

Now the scientific team is studying the effect of the concentration of nanoparticles on the efficiency of steam production on a specially designed test bench. Once the spring sun appears and scientists add the remaining equipment to the collector, the installation will begin to generate electricity.

REGIONS

BE KIND TO PEOPLE: STUDENTS OF THE OZERSK BRANCH OF MEPHI VISITED CHILDREN'S HOME IN KASLI



«Be kind to people» is the motto that every student of Ozersk Mephi can relate to. And who, if not the children that found themselves in a difficult social situation, are in need of warmth, care and attention. Especially on New Year's holidays.

On January 11, the students of the Institute together with Mrs. Nurzhanova, the head of the department of educational work, visited the Kasli children's home (Center for Children without parental care). The guys brought gifts collected by Ozersk Mephi: skis, ice floes, paints, albums and much more. We thank all those who were not indifferent and helped in collecting toys and money!

Beside the gifts, students have prepared the entertaining program for children of two age groups. The youngest ones made

crafts and played with Father Christmas' granddaughter and her assistants. The older ones learned to craft funny origami figures. They taught the kids to fold a paper "plane" in a new creative way. The children also played the game «guess what's in the box,» with small gifts in it.

It is impossible to convey the sensation of a visit in words! Children charge you with colossal energy and lots of positive emotions for a long time. Their burning eyes, sincere smiles will always remain in memory! «The meeting flew very quickly, and we didn't even notice when it was time to say goodbye! When we were leaving the orphanage, everyone really wanted to return and play with children again,» said Lyubov Lobkova, a third year student at Ozersk Mephi.

A HOT JANUARY AT TRYOKHGORNY BRANCH OF MEPHI

On the eve of the Students' Day, a series of significant and important events took place at the Tryokhgorny Institute of Technology Mephi! The graduate qualification works' defense is the most important event in the life of any student.

15 diploma projects were presented at the Department of «Engineering Technologies» in the specialty «Design of technological machines and complexes» and 7 Bachelor's final qualifying works in the department «Design and technological support of machine-building industries».

The chairman of the state examination commission, a chief engineer of FSUE «Instrument-making plant» Mr. Vardanyan noted the practical orientation and high level of training of graduates: «The presented final qualification works are focused on the needs of real production and are performed in accordance with the requirements of the enterprise. This applies, among other things, to the issues of equipment, automation and knowledge of modern methods and means of design, calculation and computer modeling. A number of design developments can be really applied at FSUE «Instrument-making plant» of Rosatom. The level of training of specialists and bachelors meets the requirements of the nuclear industry».

«Detailed cross-cutting processes with design-based cutting modes, time standards and setup maps for CNC machines will allow the implementation of the developed technologies by all services at the enterprise. Graduates of Tryokhgorny Institute of Technology Mephi demonstrated a high level of possession of CAD/CAM-

systems and presented the computer visualization of manufacturing parts for different technologies in real time», - said the chief technologist of FSUE «Instrument-making plant» Mr. Nikitin.

The results of the qualification works' defense are brilliant: out of 22 graduates 17 received excellent marks, 5 got B's. The graduate Mrs. Popova will receive a diploma with honors in the specialty «Design of technological machines and complexes».

An official graduation ceremony was held on January 24. Honorable guests came to congratulate the graduates: the head of Tryokhgorny town Mr. Sychev; Deputy General Director of FSUE «Instrument-making plant» for Economics and Finance Mr. Dorofeev; Deputy General Director for personnel management Mrs. Tumanova; Head of the personnel management Department of FSUE «Instrument-Making plant» Mrs. Solovyova and heads of departments of the city-forming enterprise.

Congratulations, parting words, and wishes from the university administration, faculty, curators, qualification works' leaders, parents, and friends were, traditionally, addressed to the graduates. Many kind words were uttered to the management and the teaching staff of Tryokhgorny Mephi. Thanks to them, graduates and bachelors were happy that day.

A festive program was prepared at Tryokhgorny Mephi for Students' day on the 25th of January. In the morning, according to the traditions of 200 years ago, teachers and university leaders treated students with a sweet honey drink, played the candy lottery and gave out surprises from teachers.



All Tatyanas were receiving gifts that day! Students happily took pictures with the main Tatiana's of Tryokhgorny Mephi, namely, the director Tatyana Ulitina, Deputy Director for Academic Affairs Tatyana Trufanova, and the head of the department of open vocational education Tatyana Etkareva.

In the afternoon, the official reception of the best students in the university took place. Winners and prize-winners of the WorldSkills championship movement, activists of the 'MIFY' student association, and the best group leaders were invited to the reception. Letters of gratitude were given out to the

best students and their parents. For students of Tryokhgorny Mephi this day was very beneficial to their health: as part of the All-Russian competition, the "Guards Tournament" was held on ice.

Student life at Tryokhgorny Mephi is a special moment in life!

CITIUS, ALTIUS, FORTIUS!

A MEPHI TEAM WON FIRST PLACE IN SPORTS SKI TOURISM COMPETITION



A MEPHI team won first place in the team competition (almost twice as far from the Moscow Institute of Physics and Technology team) in the inter-university competitions in sports ski tourism within the XXXI Moscow University Sports Games.

MEPHI athletes also received four prizes in various disciplines:

- Denis Tyurin, a student of the B17-201 group - 2nd place;
- Ilya Ayupov, a student of the C18-402 group - 3rd place;
- Nurida Sharipova, a student of the A18-901 group - 2nd place;
- Darya Shcherbakova, a student of the B17-104 group - 3rd place.



VOLGODONSK MEPHI - IN THE RUSSIAN NATIONAL TRACK AND FIELD ATHLETICS TEAM

A student of the Technical School at Volgodonsk MEPHI showed excellent results at the national championship in track and field athletics and in the near future will play in the Russian national team.

Students of Volgodonsk MEPHI Institute and Technical School show themselves from the best sides in all spheres of life. This is not only studying, but also creativity, sport, work in construction teams, participation in volunteer movements and much more.

The indoors championship of Russia among boys and

girls under 18 years old was held from January 28 to 31 at the Volgograd track and field arena. Athletes competed in different distances (60m, 400m, 800m, 1500m, 3000m), relay race 4x400, hurdles, high jump, pole vault, long jump, triple jump, shot put.

As a part of the Rostov region national team, a student of Volgodonsk MEPHI's Technical School, a sportswoman of the athletics department of the sports school No. 5 in Volgodonsk, Valeria Volovlikova, who a week ago became the winner of the Southern Fed-

eral District championship in the same arena, took part in these competitions.

As a result of a hard struggle in athletics «triple jump» discipline, in which, by the way, 22 participants competed for the victory, with the result of 12 m 84 cm Valeria won a silver medal, losing only by 1 cm to the athlete from St. Petersburg. In three out of four jumps Valeria was better than her rival, but the victory according to the rules is awarded to the athlete whose score, even once, is the maximum. According to the results of the performance, Valery was included in the Russian national team.

Valeria has been involved in sports for 11 years. To the question of how it is possible to combine studying at a technical school with playing sports, she smiles: "Immediately after the classes finish I run to the training, after that I go home and get ready for classes." Sport at Volgodonsk MEPHI, according to Valeria, is especially significant. Excitement, responsibility and experience, every competition is very important for her and she "tries her best" to do what is required, and I must say, Valeria does it very well. The student is a member of the Volgodonsk MEPHI team and represents her alma mater in competitions at various levels. "I like to defend the honor of my school, and I always do it with pleasure," says Valeria.

Currently, Valeria Volovlikova is preparing for the European Championship, working on mistakes in jumping technique, and, as always, combining studies and sports, she will do everything possible to achieve the maximum result

both in one and in the other. Here she is, our student: clever, beautiful, sportswoman, activist and just a good girl!

Congrats to you, Valeria! Volgodonsk MEPHI is supporting you!

