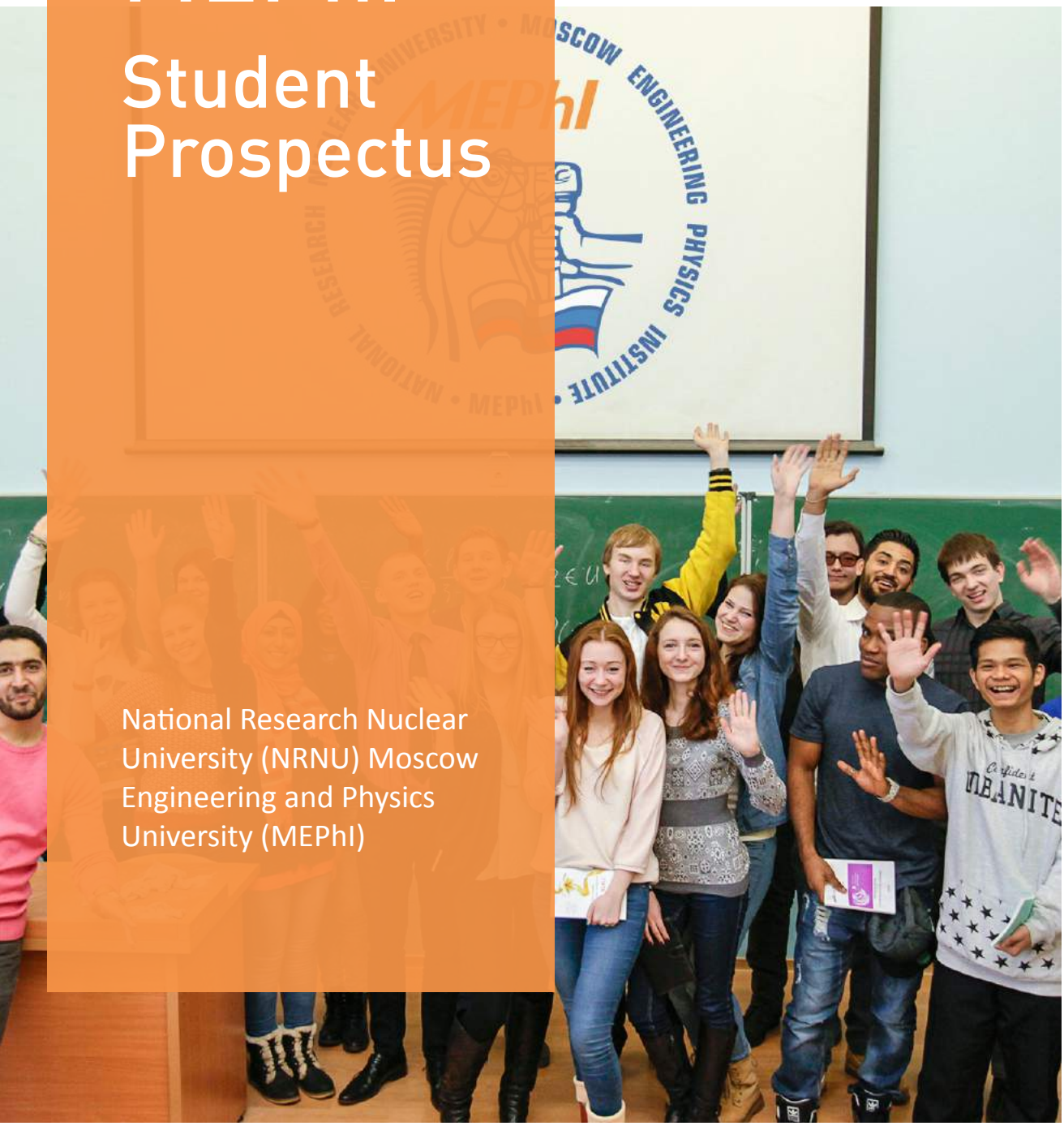
MEPhI

ENERGIZE LIFE

MEPhI

Student Prospectus



National Research Nuclear University (NRNU) Moscow Engineering and Physics University (MEPhI)

Address: Kashirskoe Shosse 31, Moscow, Russia 115409

Website: www.mephi.ru/eng

Hotline: insert for students

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Contents

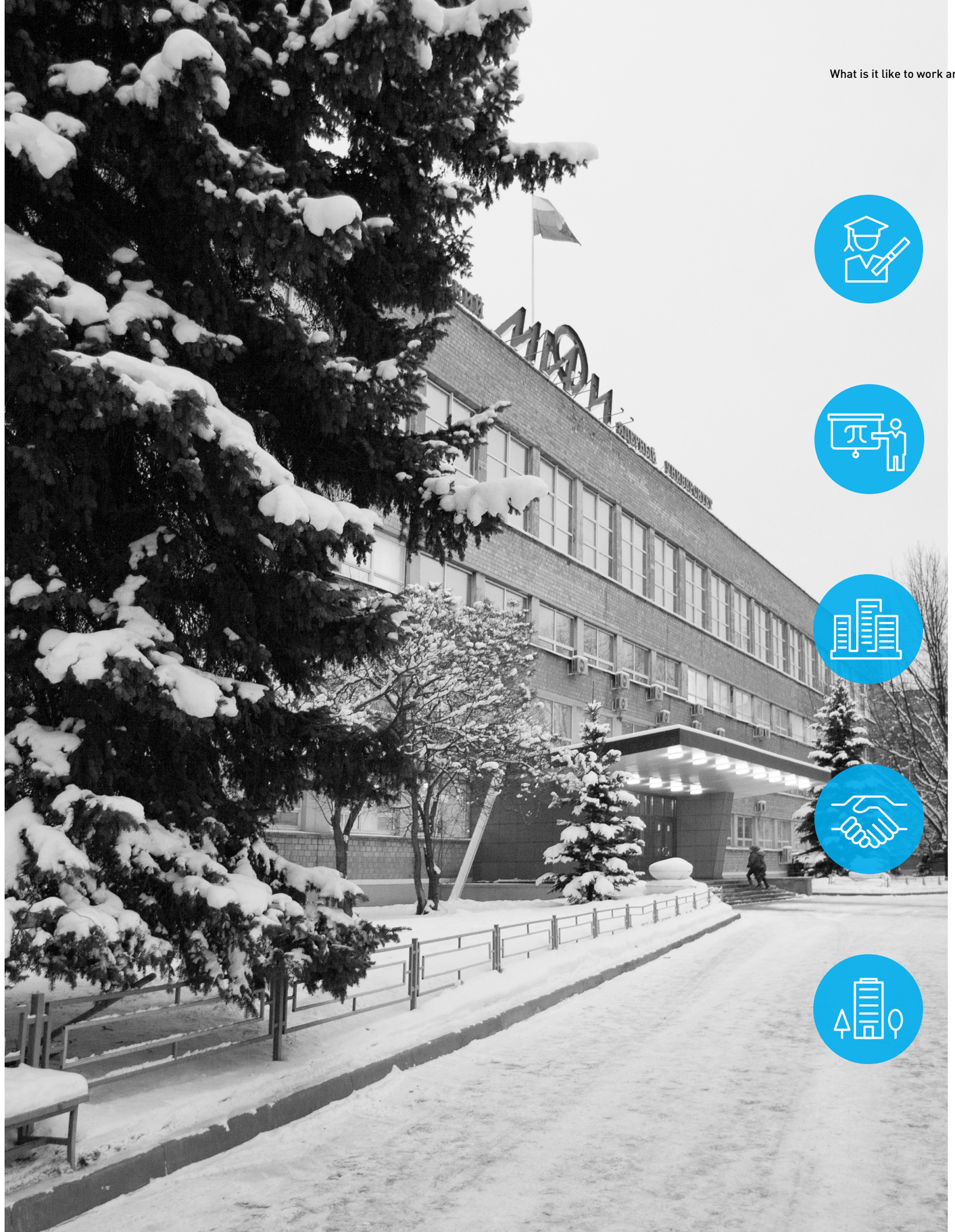
I. What is it like to work and play at MEPhI?

Statistics

MEPhI in Moscow has 8,000 students and 800 faculty, with a 10:1 faculty to student ratio.

Beyond Moscow, MEPhI has 21 satellite campuses, located in 15 Federal Districts and in 20 atomic cities all over Russia. It combines 11 Higher Education Institutions and 20 colleges, totaling over 38,000 students and over 1500 full and associate professors. MEPhI offers 35 programs in collaboration with foreign universities. Certain programs are now offered in English, and students have the opportunity to participate in seven double degree programs.

MEPhI's campus has 57 buildings, covering a total of 96,000 square meters.



38 000
STUDENTS

1500
PROFESSORS

21
SATELLITE CAMPUSES

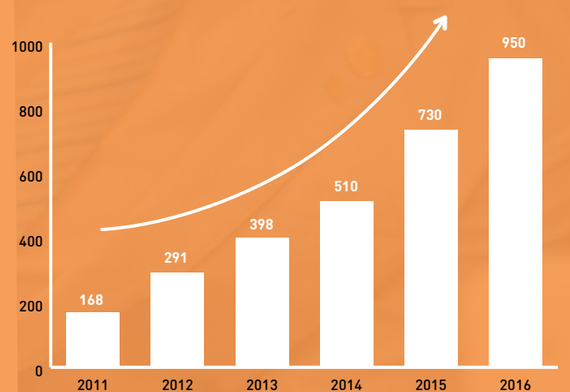
35
PROGRAMS IN COLLABORATION WITH FOREIGN UNIVERSITIES

57
CAMPUS BUILDINGS

Foreign Students

Applicants come from countries such as Turkey, Jordan, Vietnam, Mongolia, Bangladesh, Algeria, China, and many others. Many students are from nearby countries as well, including Kazakhstan, Ukraine, and Lithuania.

The number of foreign students at MEPhI is growing.



Stipends and Financial Assistance

ACADEMIC SCHOLARSHIPS

up to **19 500** rubles/ month

SPECIAL SCHOLARSHIPS

up to **7 000** rubles/ month

SOCIAL SCHOLARSHIPS

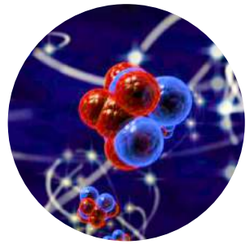
up to **19 000** rubles/ month

Academic Programs

MEPhI offers a unique and powerful set of educational programs. The founding concepts of the university was to give students both a solid theoretical foundation and teach them to be good engineers. This preparation creates discoverers and innovators who are very attractive for employers.

MEPhI covers a variety of cutting-edge areas, including nuclear, energy, space, IT, security, medicine, and business. On top of the traditional lecture-based curriculum, you will have the ability to them apply your knowledge with projects during your diploma thesis and internships.

International students will have an assortment of courses in English to select from. Just as well, they will have the opportunity to fully immerse themselves in Russian in an intensive Russian for engineers program offered by MEPhI.



Research at MEPhI: the Centers of Excellence

In 2015, MEPhI transitioned from a system of schools and departments to integrated Centers of Excellence. These centers integrate research, education, and innovation to produce scientific impact and train top-notch students to take on the challenges of tomorrow.

The Centers of Excellence include:

1. Fundamental research and particle physics
2. Plasma and laser research and technology
3. Nuclear energy and engineering
4. Nuclear systems and materials
5. Nanostructure electronics
6. Nonequilibrium physics of atomic systems
7. Applied mathematics and theoretical physics
8. Information technology and cybersecurity
9. Humanities research and cognitive technology

The Centers of Excellence have already begun to collaborate with various industrial and academic partners, including: Rosatom, CERN, Rostechnology, Kurchatov Institute, the IAEA, etc. Many of the centers also energize megaprojects of our time, including the ITER fusion reactor, currently under construction in France, as well as ALICE and ATLAS high-energy physics experiments at CERN in Switzerland.

Student Life

Your student years are a time for discovery, new experiences, and implementing your ideas. MEPhI provides you with many such opportunities. Beyond research and innovation, you can participate in student governance, the arts, sports, public service, journalism and many other clubs and activities that fit your interests. The United Student Council (OCO) can provide you the support you need to launching your own project idea. Or, maybe you'd like to joint the Student Council itself and grow as a leader. For the last couple of years, the United Student Council has been winning awards from the Ministry of Education for its work in supporting student life at MEPhI.

Clubs

Here is just a snapshot of some of the activities you can also be engaged in at MEPhI during your student years:

- Public service
- Volunteer teaching
- Ecological movement
- MEPhI's student television channel
- MEPhISTUDENT website
- Design lab
- Comedy Club
- Choir
- Robotics lab
- Theatrical program

Sports

At MEPhI, you can participate in almost three dozen (quick mental math!) sports, from track and field to wrestling, rugby, hockey, football, volleyball and programs like aerobics, rock climbing, sailing, and badminton. The physical education program at MEPhI and MEPhI sports club "Reactor" are there to help you decide where you want to join or support you in starting your own sports club. Many students participate in regional as well as international competitions.

II. We are MEPhI

The National Research Nuclear University (NRNU) Moscow Engineering and Physics Institute (or "MEPhI", for short) is a leading Russian university, and a quickly growing figure in the BRICS scene and the world. Headquartered in Moscow, Russia and with a birthdate in 1942, MEPhI continues its legacy of training ambitious students in the sciences and engineering.

Teams of MEPhI faculty and students are actively solving complex issues in high-priority fields. These fields go from nuclear to nanotechnology, medicine to ecology, and IT to innovation management. The new MEPhI Centers of Excellence team-up traditional departments around strategic areas to energize discoveries. These Centers weave together education, research, and innovation to bring about maximum impact to Russia and the world. We invite you to join the team as a professor, partner, or simply as a supporter.

Mission

NRNU MEPhI empowers the world's best nuclear tech experts and talented students to produce secure and stable energy, excel in creating applicable science, boost human capital and economic output in various fields, support industry and business, and be innovative and creative – as much as they want and can. Our overall mission is to energize and improve people's lives in Russia and globally.

Strategy

The strategic goal of MEPhI is to become a global leader in education, science and innovation in nuclear, radiation, subnano and nano- technologies and engineering, providing a significant contribution to the innovation-driven growth and the competitiveness of Rosatom State Corporation and other leading Russian high-tech companies in global markets.

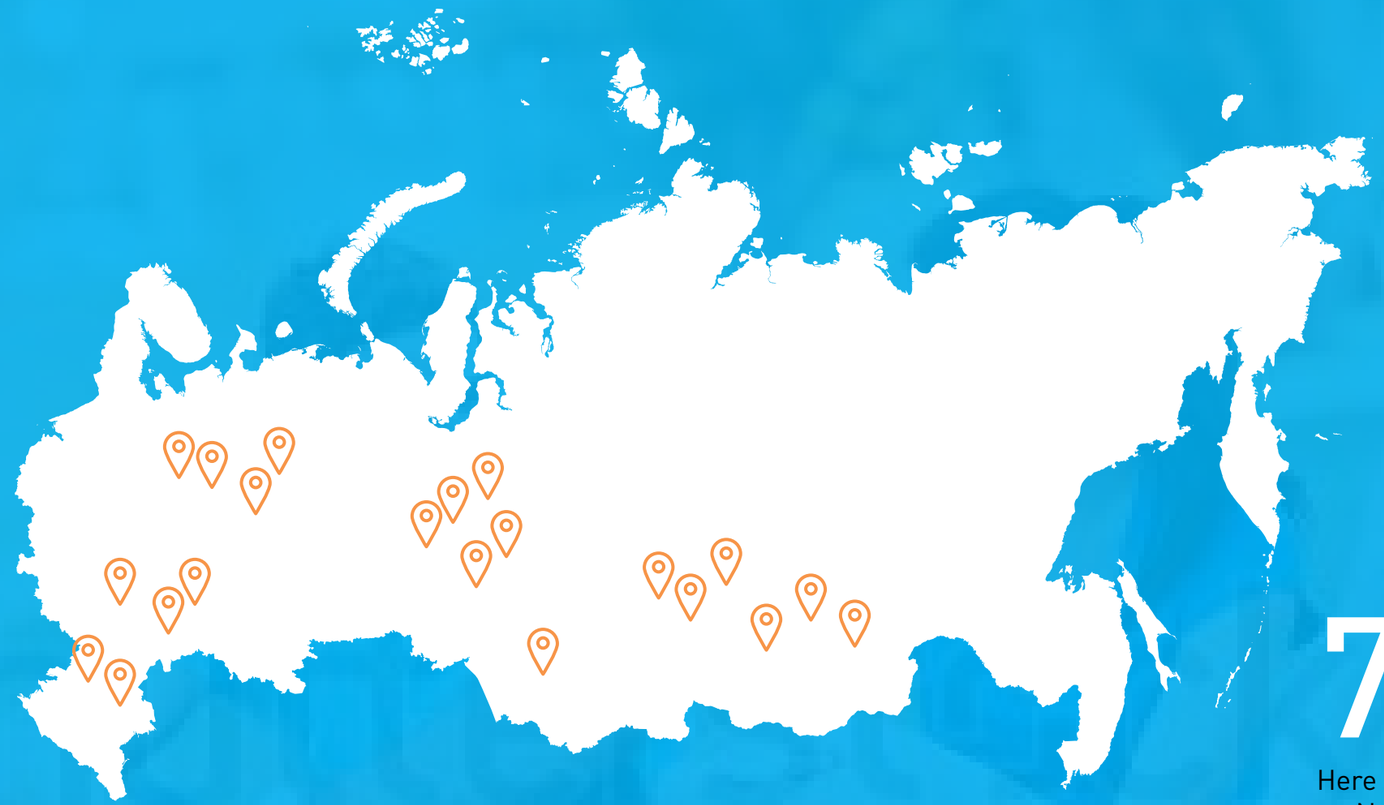
Values and Culture

The culture at MEPhI is based on the principles of openness, internationalism, and innovation.

University values:

- Accountability for results
- Readiness for change
- Effectiveness
- Respect
- One team

MEPhI in 7 Facts



1

Beyond Moscow, MEPhI has 21 satellite campuses, located in 15 Federal Districts and in 20 atomic cities all over Russia. It combines 11 Higher Education Institutions and 20 colleges, totaling over 38,000 students and over 1500 full and associate professors.

2

MEPhI is a global university – it already has adapted the European Bologna education process, and now offers BS, MS, and PhD programs. It is also a member of the CDIO (Conceive, Design, Implement and Operate) international community and has ever-increasing course offerings in English (and even full-programs).

3

MEPhI (the Moscow branch) has 8,000 students and 800 faculty, with a 10:1 faculty to student ratio.

4

By 2020, MEPhI plans to have 15% international faculty and staff members and 21% international students.

5

We have our own pool-type research reactor, with "blue glow" (discovered by Cherenkov, one of our co-founders).

6

MEPhI has undergraduate and graduate students from Turkey, Vietnam, Jordan, Mongolia, and many more

7

Here are some areas we work on:

- Nuclear Physics and Technologies
- Nuclear Power Engineering and Thermophysics
- Physics
- Applied Mathematics and Physics
- Applied Mathematics and Information
- Material Study and Material Technologies
- Information and Computer Engineering
- Information Security
- International Relations
- Foreign Languages
- Economics
- Business
- Economics
- Management
- Law

Professor Mikhail Strikhanov, Ph.D

Letter from the President

Dear student,

Thank you for taking the time to explore and find out more about our home–MEPhI.

If you really want to receive excellent knowledge, discover your talents and find good friends and partners, the Russian National Research Nuclear University MEPhI is the university for you.

Thanks to the high scientific and educational potential of the university, MEPhI has become one of the TOP-250 leading universities, according to the world global international Times Higher Education (THE) ratings. Within Russia, MEPhI is recognized as one of the leading universities. It was ranked second among the Russian higher education institutions in an annual national rating in 2012-2013.

In 2012, MEPhI celebrated its 70th birthday. Present-day MEPhI is a unique place. Our graduates are capable of solving topical problems of modern science in the newest industrial sectors. Among them there are a lot of chief executive officers of large production companies, well-known scientists, astronauts, politicians and successful businessmen.

In recent years, the university has started preparing specialists in a variety of new and perspective areas. First and foremost, these are engineers and scientists for the new nuclear energy platforms, the defense industry, metrology and standardization, ecological safety and others. Also, MEPhI prepares experts in informational and economic security, capable of making optimal technological decisions and participating in international scientific and technical collaboration.

MEPhI actively interacts with leading international organizations. During your studies, you will have the possibility to intern and receive experience in the world-leading high-technology organizations, such as Intel, IAEA, the World Nuclear University, US Department of Energy, the European Center of Nuclear Research (CERN), Microsoft, Sun Inter Systems, and others.

You will also have the chance to personally grow by numerous university sports and cultural associations. Our athletes are prizewinners of national and international competitions. All this helps you to fully realize your potential. I invite you, dear friends, to join our university.

Professor Mikhail Strikhanov, Ph.D
President, Rector of NRNU MEPhI

History: 70 Years of Energizing

The university traces its history back to the middle of World War II, in 1942. It started off as the Moscow Mechanics Institute of Ammunition. The original charter was to train people for the nuclear industry, which had just began to boom. The Head of the Soviet Atomic project, academician Igor Vasilyevich Kurchatov (yes, the "father of the atomic bomb") – was one of the legendary founders, along with A.I. Leypunsky, L.A. Artsimovich, I.K. Kikoin, N.N. Semenov, Ya.B. Zeldovich, I.E. Tamm, and N.I. Novikov.

By the 1960's, MEPhI became the leading higher education institution in Russia, energizing the education and training for peaceful nuclear energy. Over the course of its history, 6 Nobel Prize winners have worked at MEPhI, including: N. G. Basov, a MEPhI graduate, as well as A. D. Sakharov, N.N. Semenov, I.E. Tamm, I.M. Frank, and P.A. Cherenkov "blue glow".

Could you be the 7th Nobel Prize winner?

Mephi is the participant of the federal programs (2007–2020)

In July 2013 MEPhI was shortlisted in governmental Competitiveness Enhancement Program as one of the winners among the Russian Universities. There were only 15 universities chosen

	Volume of Funding	Main results
2007	**Competitiveness Program**	Competitiveness enhancement program 2013–2020: • Achieving global leadership in education and science Entering the TOP-100 list of the universities world rankings Internationalisation of the educational process • Attracting leading scientists • Attracting foreign students • Increase in publication activity • Radical renewing administrative and management personnel
2009–2017	**Research University Program**	Research University Program 2009–2017: • Regionally distributed network of branches formation Large-scale purchase of equipment for research and educational activities • Large-scale capital construction and repair
2013–2020	**EIP Education Innovations Program**	Education Innovations Program 2007: • New educational programs • New research and educational equipment Renovation of lecture halls and laboratories

Future Plans

Walking around campus and seeing students from Turkey and Vietnam, as well as international scholars from MIT and Berkeley, you'd be surprised to find out that MEPhI was a closed, strategic facility until the **2000's**. But, that has changed quite a bit.

A new wave of development of the university began **in 2008,** when MEPhI was one of two universities recognized by the government as a National Research Nuclear University (NRNU).

In 2007, MEPhI was awarded one of the Education Innovations Program grants by the Russian Ministry of Education.

In July 2013, MEPhI was shortlisted in the governmental Competitiveness Enhancement Program, or so called "5 into 100" competition. The objective of the program is to boost 5 of these 15 chosen universities, who are already leaders in Russia, to be in the **top 100 universities worldwide.**

	2013	2020
Articles per Fac. Memb.	1,1	6,0
Citation per FM	21	80
Foreign FM & Researches	0,1 %	14 %
The Share of Foreign Students	3,3 %	21 %
Share of R&D	43 %	52 %
Rank in THE (overall)	226–250	121–170
Rank in THE (subject rank)	74	51–100
Rank in QS	–	51–100

Key Indicators:

- Rating in international system (QS, THE
- Number of articles in Web of Science and Scopus
- Average citation for 1 researcher in Web of Science and Scopus
- Number of visiting faculty and researchers from abroad
- Number of international students
- Average entrance grades of BS students
- Share of university income from non-federal budget sources
- Share of MS and PhD students of the total
- Share of faculty and researchers who have received extended training in leading international research/educational organizations
- Share of R&D profits of the total university income

Ratings

MEPhI has boosted in its ratings in the last couple of years, and the trend continues to go up.

International University Rankings 2014	In The World	Among Russian Universities
Times Higher Education (THE) Ratings		
BRICS and emerging economies	13	2
Physical sciences	95	
QS Ratings		
Overall	481	9
Physics and astronomy	251	4
Emerging Europe and Central Asia	34	8
BRICS	57	9

Russian University Rankings 2014	Among Russian Universities
Expert RA	4
Interfax and Echo of Moscow	3
Webometrics	4

How would you like to join the team of pioneers to bringing MEPhI into the top 100?

We have created very ambitious plans and developed a road map for improvement of indicators, which promote MEPhI in the world University rankings. There are very complex tasks, for example, increasing the number of publications per science teachers six fold in eight years... We want to bring structure and management of the University closer to the business structure... On the one hand we have a lot of defensive and closed matter tasks, on the other hand – the trend of globalization. This is different trends, but they are successfully solved, for example, in the United States."

We have a very detailed plan what we should do to attract foreign scientists. By 2020 we plan to have more than 14% of foreigners in personnel. There is also a lot of complexity as well. All the prominent scientists have long-term plans for the coming years, so we are competing, but we are working upon this matter.

As for students, it is quite natural for us niche. We are the main partner University of the SC "Rosatom", and "Rosatom" has its own interests and plans for the construction of facilities in more than 70 countries around the world. So we follow it, and in places where there is at least the outline of the agreement, we are working on the issue of training. And training is held not only on Russian territory, but on the territory of another country as well. This cooperation with "Rosatom" gives us about a half of foreign students.

Now approximately 6.5% of students are foreigners, and it's planed to increase this number up to 21%.

Elena Borisovna Vesna, Vice-President for Education

III. Educational Programs at MEPhI

Admissions

Admissions to MEPhI for BS and Specialist programs is based on your results on the Russian Unified Federal Exam (EGE) on a 100 scale and the entrance exam.

As an international student, there are several straightforward venues to be admitted, including student exchange agreements between your country and Russia. Please contact the MEPhI International Students Office for more information. Please keep in mind, international students should start from the 1st years of the Specialist, BS, and MS programs.

Want to learn more? You can find a lot of useful information abut the admissions process here: **http://priem.mephi.ru/**

Special Programs and International Accreditations

MEPhI was officially recognized as a member of the Worldwide Conceive-Design-Implement-Operate (CDIO) Initiative for modernizing engineering education. Having joined the CDIO standards, MEPhI has come into line with world leaders such as Stanford University, Massachusetts Institute of Technology (MIT), United States Naval Academy, Tsinghua University (China), Chalmers University of Technology (Sweden), and several leading Russian universities as well.

Diploma Project and Internships

The main feature of education at MEPhI is continuity of education, research and innovation. You have the chance to participate in research, even starting from your first few years. Fourth year BS, MS and PhD students are officially involved in research projects at the MEPhI labs or at one of our Russian or international partner organizations.

Education Programs Offerings

Training course (specialization)	Duration	Level of education
Computer Science and Engineering	4 years	Bachelors
Information Security	4 years	Bachelors
Information Systems and Technology	4 years	Bachelors
Applied Informatics	4 years	Bachelors
Applied Mathematics and Informatics	4 years	Bachelors
Materials Science and Technology of Materials	4 years	Bachelors
Foreign affairs	4 years	Bachelors
Management	4 years	Bachelors
Applied Mathematics and Physics	4 years	Bachelors
Software Engineering	4 years	Bachelors
Physics	4 years	Bachelors
Economics	4 years	Bachelors
Nuclear Physics and Technology	4 years	Bachelors
Economic Security	5 years	Specialist
Information security of automated systems	5 years	Specialist
Nuclear power plants: design, operation and engineering	5.5 years	Specialist
Information analytical systems security	5.5 years	Specialist
Isotope separation technology and nuclear fuel	5.5 years	Specialist

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Training course (specialization)	Duration	Level of education
Electronics and Automation of Physical Installations	5.5 years	Specialist
Nuclear Reactors and Materials	5.5 years	Specialist
Information Security	2 years	Masters
Materials Science and Technology of Materials	2 years	Masters
Economics	2 years	Masters
Nuclear Power and Thermal Physics	2 years	Masters
Nuclear Physics and Technology	2 years	Masters
Applied Mathematics and Informatics	2 years	Masters
Mathematical and software support of computers, systems and computer networks	3 years	PhD
Information measuring and control systems (by industry)	4 years	PhD
Devices and methods of experimental physics	4 years	PhD
Solid-state Electronics, Radio-Electronic components, Micro-and Nano-Electronics, Devices based on quantum effects	4 years	PhD
Plasma Physics	4 years	PhD
Nuclear Power Plants: Design, Operation and Decommissioning	4 years	PhD
Automation and management of technological processes and production (by industry)	4 years	PhD
Physics and Astronomy	4 years	PhD
Mathematical and software support of computers, systems and computer networks	4 years	PhD

IV. Research and Innovation at MEPhI

Research and development

MEPhI holds the leading positions among the Russian universities both in the total volume of R&D funding (2 785 million rubles) and total R&D per 1 faculty member (3,481 million rubles)

Main partner organisations: Physical Institute, Space Research Institute, Institute of General Physics, Institute of Crystallography, Institute of Applied Mathematics, Institute of Chemical Physics, Institute of Atmospheric Physics, etc

200+

Foreign scientists take part in joint scientific and educational projects of the university

70+

Corporate customers from high-tech economy sectors of the Russian Federation in 2014

5

projects for high-tech production development (235 million rubles)

19

R&D projects in cooperation with industrial partners in the framework of the Federal Target Program "Research and Development of Priority Directions of Scientific and Technological Complex of the Russian Federation" (1102 million rubles)

5

fundamental and pilot studies under the Russian Science Foundation programs (135 million rubles)

62

Institutions And Research Centres Of Ras (The Russian Academy Of Sciences) Participate In Joint Research Projects

Recent Discoveries and Inventions

- Created the Transition Radiation Tracker for the ATLAS project at LHC, which contributed to the discovery of the Higgs boson
- Demonstrated the existence of quark-gluon plasma and extracted antihelium-4 nuclei, as part of the STAR collaboration
- Collaborated with the Russian satellite Resurs-DK 1 to put the PAMELa detector on-board and detect the existence of new cosmic rays (likely associated with the decay of "dark matter" particles)
- Developed the technology to detect and record 2-20keV, low activity solar bursts with a detector onboard the Coronas-Photon satellite
- Thought up of the theory of quantum electrodynamic cascades in extremely strong laser fields
- Built a full-scale Russian nuclear power plant simulator
- Developed the technology for creating terahertz radiation, based on the Smith-Purcell and Vavilov-Cherenkov radiation
- Innovated the endoscopic capsular complex "Landysh"
- Teams of researchers developed neutron-capture cancer therapy technology at the MEPhI IRT nuclear research reactor
- Experimental installation Pico-4 was created for modeling micro-electronics products radiation stability

MEPhI Centers of Excellence

The high-caliber analytical minds at MEPhI are developing solutions to the world's top priority research areas – nuclear, energy, IT, medicine, space, nanosystems, business–you name it. MEPhI has launched integrated Centers of Excellence that take comprehensive approaches to these areas. The Centers are a modern building block that has proven around the world to be successful innovation systems. Each Center combines one or several of the former academic departments around specific themes to allow for synergetic collaboration. The Centers intertwine education, research, and innovation, with efficient administrative support, providing for fertile ground of discovery and commercialization. The thematic areas include:

Nuclear
High energy physics, particle physics, plasma physics, laser, plasma and beam technologies, ionizing radiation detectors, molecular physics, safe management of radioactive waste and spent nuclear fuel, radiochemistry and nuclear chemistry, physical protection of nuclear facilities, new generation reactor technology, secure nuclear power fuel cycles, advanced nuclear fuel.

Energy
Controlled thermonuclear fusion, risk and product lifecycle management, smart energy grids (Smart Grid), extreme materials science and composites, energy storage, supercapacitors, superconducting components of energy generation and transmission systems, alternative energy, etc.

Nano
nanosystems and nanomaterials: nanoelectronics, microwave nanoelectronics, organic electronics, nano-bioengineering, nanomechanics, intelligent nanomaterials, materials for nuclear and space applications, composite materials.

Space
cosmology, dark matter, cosmic rays, solar physics, space instrumentation and radiation-resistant electronics.

IT
multidimensional multiscale modeling of physical experiments, basic processes and technological solutions in nuclear, medical and space systems, nanosystems and nanodevices, design of training systems; computer visualization; distributed computing GRID environment; cyber security.

Security
counter-terrorism, nuclear nonproliferation, high-sensitivity search systems for fissile and explosive materials.

Medicine
nuclear medicine and medical physics, radiation biophysics, scanners, gamma probes, portable accelerators for radiation therapy, electronic and intelligent diagnostic systems, complex methods of cancer therapy, neutron capture therapy.

The next few pages provide overviews of the 9 MEPhI Centers of Excellence – their focus areas, partners and recent accomplishments.

TAKE A LOOK AND SEE WHICH CENTER FEELS LIKE HOME TO YOU.
YOU CAN FIND OUT MORE INFO ONLINE HERE: [INSERT LINK]

1. Fundamental Research and

Focus Areas:
Fundamental research in cosmology, astrophysics, and particle physics

Center Director:
Sergei Rubin

Partners:
- CERN (Switzerland)
- DESY (Germany)
- GRAN SASSO and LANL (Italy)
- Joint Institute for Nuclear Research (Russia)
- Institute of High Energy Physics (Russia)

Current projects:
- Theoretical and experimental work in the discovery of the Higgs boson
- Investigating the composition of cosmic rays
- Understanding the properties of quark-gluon matter
- Exploring the birth of the universe
- Discovering dark matter particles
- Getting new experimental data on neutrinos

Equipment Resources:
Modern IT-telecommunications technology, including distributed, cloud and supercomputing technology

Random Fact:
This MEPhI team developed a detector in the core of the ATLAS experiment, which, together with other detectors, was used to detect the Higgs boson.

2. Plasma and Laser Research and Technology

Focus Areas:
1. Plasma physics–fusion
2. Solid state physics
3. Laser and plasma (nano)technology

Center Director:
Valerii Kurnaev

Partners:
- Troitsk Institute of Innovative and Thermonyclear Research "TRINITY" (Russia)
- Kurchatov Institute (Russia)
- Russian Academy of Science (RAS)
- MIT (USA)
- Stanford (USA)
- (Europe)
- (Japan)

Current projects:
- International Thermonuclear Experimental Reactor (ITER)
- XFEL laser on free electrons
- Major radiation installations of synchrotron and lasers

Equipment Resources:

To add

Random Fact:
Among the team, there are 2 academician and 2 corresponding members of the Russian Academy of Science (RAS), head of the top 4 physics schools in Russia.

3. Nuclear Energy and Engineering

Focus Areas:

1. Design, operation, maintenance, and decommissioning of nuclear power plants
2. New generation reactors and closing the fuel cycle
3. Radiation safety

Center Director:

Sergei Popov

Partners:

- International Atomic Energy Agency "IAEA" (Austria)
- World Association of Nuclear Operators "WANO"
- European Nuclear Education Network "ENEN"
- Asian Network for Education in Nuclear Technology "ANENT"

Current projects:

- Automatic control systems for nuclear plants
- Mathematical modeling of physical processes of nuclear energy systems
- Nuclear nonproliferation
- Equipment Resources:
- 2.5 MW IRT MEPhI Reactor

Random Fact:

One of the semester projects for students is to design a new type of fuel rods and the fuel assembly.

4. Nuclear Systems and Materials

Focus Areas:
Creation and investigation of new materials for energy-intensive technology

Center Director:
Boris Kalin

Partners:
- CERN (Switzerland)
- DESY (Germany)
- MIT (USA)
- High Energy Accelerator Research Organization "KEK" (Japan)

Current projects:
To add

Equipment Resources:
To add

Random Fact:
The Center has already had a total of 4 students exchanged with the Nuclear Science and Engineering Department at MIT since 2012.

5. Nanostructure Electronics

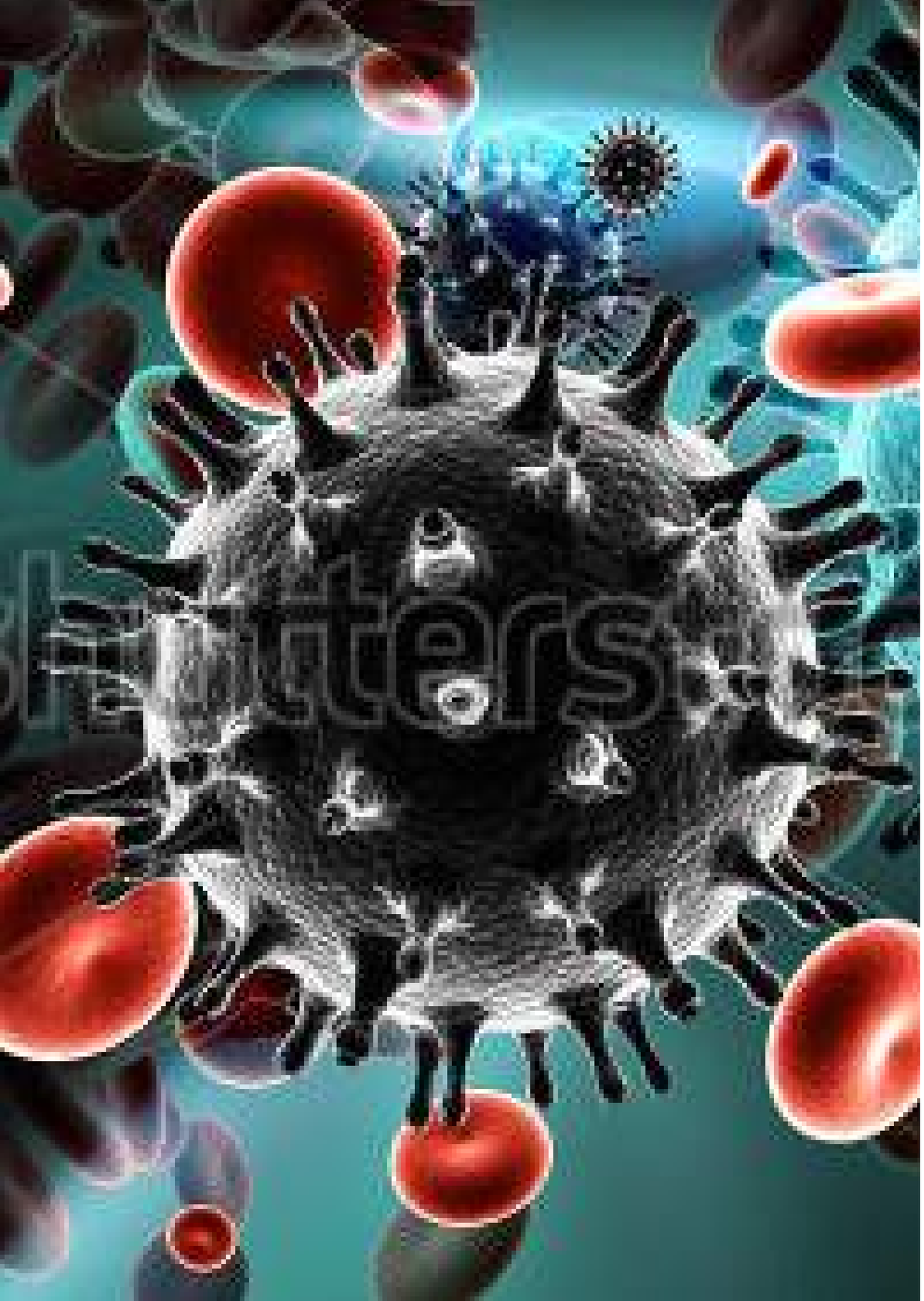
Focus Areas:
- Condensed state physics
- Optoelectronics
- High-temperature, radiation-resistant electronics
- Organic electronics
- Center Director: Nikolay Kargin

Partners:
- Research and Manufacturing Enterprise "ISTOK" (Russia)
- Rosatom (Russia)
- Kurchatov Institute (Russia)
- International Atomic Energy Agency "IAEA" (Austria)

Current projects:
- Field transistors
- Photovoltaic solar panels

Equipment Resources:
To add

Random Fact:
Home center for Professor Mikhail Strikhanov (MEPhI's president).



6. Nonequilibrium Physics of Atomic Systems and Composites

Focus Areas:
- Fundamental problems of the kinetics of disordered condensed systems, porous media and composites
- Low-dimensional systems and "soft" matter
- Extreme fluid dynamics and selective atomic processes
- Applied ion physics, methods of mass spectrometry and ion mobility spectroscopy
- Nonequilibrium phenomena in the interaction of radiation with charged disperse systems

Center Director:
Vladimir Borman

Partners:
- Rosatom (Russia)
- University of Michigan (USA)
- China Academy of Engineering Physics (China)

Current projects:
- Fluid dynamics in superstrong fields of cooperative atomic processes
- Soft matter, hybrid, composite and smart materials
- Quantum metrology and computing
- Development of physical principles of nuclear frequency standard for precision optical studies of atomic and nuclear spectra of single ions

Random Fact:

7. Applied Mathematics and Theoretical Physics

Focus Areas:
1. Fundamental and applied research in mathematical modeling
2. Non-linear mathematical physics
3. Theoretical physics and non-linear quantum dynamics
4. Mathematics

Center Director:
Nikolai Narozhnii

Partners:
- Max Planck Institute (Germany)
- Bordeau University (France)
- University of Maryland (USA)
- Kurchatov Institute (Russia)
- Joint Institute for Nuclear Research (Russia)

Current projects:
Developing new lasers as part of consortia, including Extreme Light Infrastructure and Exawatt Center for Extreme Light Studies

Equipment Resources:

To add

Random Fact:

To add

8. Information Technology and Cybersecurity

Focus Areas:
Innovative hardware and software solutions for the information security, automobile, mobile and computer industries

Center Director:
Dmitry Mikhailov

Partners:
- "INFI" (Italy)
- Rosatom (Russia)
- Rosneft (Russia)
- Intel
- Samsung
- Kaspersky
- Infowatch
- Yota
- Transaero (Russia)

Current projects:
To add

Equipment Resources:
To add

Random Fact:
To add

9. Humanities Research and Cognitive Technology

Focus Areas:
To add

Center Director:
Alexander Nevzorov

Partners:
To add

Current projects:
To add

Equipment Resources:
To add

Random Fact:
To add

Innovation at MEPhI: the Engineering Center

The MEPhI Engineering Center (EC) is a structural unit of MEPhI, born and living right on campus, fully integrated with the education and innovation work happening at the university. The EC was established in 2012, emerging from the 40-year old legacy of the MEPhI Student Constructor-Research Bureau – a hobby shop where students could ideate and experiment.

Today, the MEPhI EC is regarded as one of the largest and most successful platforms in Russia for creating and supporting the engineering products for applications in various high-tech industries.

The EC has already gave birth to more than 15 projects, at various investment levels. It is a second home for more than a hundred engineers. Most of the employees and researchers of the EC are MEPhI students and alumni. The EC provide graduate and post-doctorate students with an opportunity to gain their first job-experience or diploma thesis project in a successful IT-company, in federal and international projects.

The EC's portfolio covers electronics, automation, software development, information security, and medicine. The EC even has its own manufacturing line inside their building at MEPhI, making it possible to go beyond just designing the product into designing the manufacturing process as well.

Come check it out – Prime Minister Dmitry Medvedev already has!

Projects have been conducted in Moscow and 18 more cities in Russia and worldwide: France, Netherlands, Turkey, Bahrain, China, Singapore, USA, and Brazil.

Mission:
Ceate high-quality new technology that will make life more comfortable and safer.

MEPhI Innovations

Innovation is undoubtedly important to progress (and awesome). At MEPhI, you'll join a community of avid thinkers and people who can also then take scientific discoveries and bring them to life. You'll have the chance to brainstorm, experiment, and implement your ideas.

Here are some tidbits about the innovation trends happening at MEPhI and continuing to climb:

- 113 patent registrations in Russia
- 341 copyrights
- 26 manufacturing process innovations
- 20 entrepreneurial teams on campus
- 99 certificates of government registration of the computer programs and data bases
- 43.1% of the university funding is outside of the federal budgeting (largely due to collaboration with the industry)

Some of the latest gadgets that have come out of MEPhI include:

Endoscopic complex "Landish"
Endoscopic tool for pain-free and effective diagnosis of digestive tract ailments.

SHIELD
Hardware-software system for protecting automated control systems from unauthorized hacks into the system.

Gamma-locator
Compact device for identifying malignant tumors in the body.

AutoVisor
Security system for monitoring the information systems of your car.

OKO
Device for monitoring human behavior on the basis of their eye movements.

CopterZone
Unmanned aerial systems with active safety systems for covert surveillance, monitoring and photos / videos.

Magnetic well probes
Magnetic well probing is used for geological sur veys — determining the amount of iron-ore in rocks.

What has the EC accomplished?

Apple MFi Program License
Engineering center is one of the first organizations that gained Apple's license "Made for iPhone" to develop hardware accessories for i-devices.

Nvidia official partner
Scientific and engineering collaboration agreement with one of the IT-industry leading companies surely gives us privileges and bonuses.

Skolkovo
...and long-term work with Skolkovo grants and competitions.

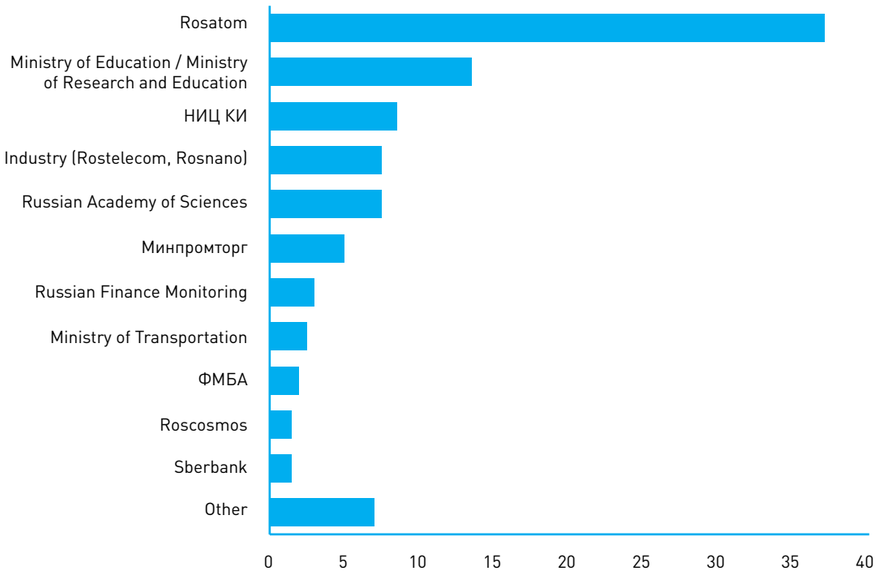
"Innovative passport"
"..is given to persons and legal entities, who implement innovation projects in Moscow."

V. MEPhI Community and Partners. Life after MEPhI

Life after MEPhI

MEPhI graduates are highly sought out, not only in Russia, but abroad. We can provide a list of over 100 leading international research centers and labs where our alumni work. These include places like CERN (Switzerland), Brookhaven National Lab (USA), Yulikh Research Center (Germany), the Chinese Academy of Sciences, and the High Energy Accelerator Research Organization (Japan.) As you'll see, our alumni find jobs in fields from technology to federal positions or start-ups. Below you will statistics for where the recent grads go.

Where MEPhI graduates go:

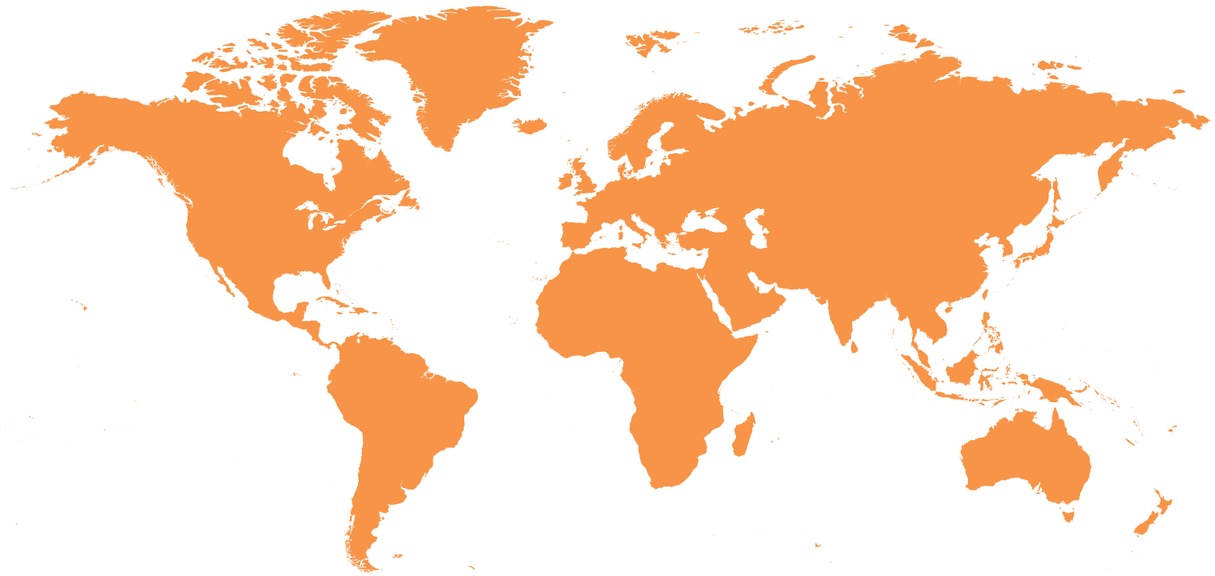


Collaboration with the Industry

A successful university – industry – government ecosystem energizes the process from scientific discovery to engineering, commercialization and impact. MEPhI works together with over 70 high-tech Russian companies, and that list is ever growing.

You can find some of our industrial partners below:

Training Staff For International Nuclear Projects



Strategic Industrial Partner: Rosatom

Supporting Rosatom's Internationalization

Since its foundation, MEPhI has been an important element for the Russian nuclear industry, providing both R&D efforts as well as raising the next generation of specialists for the Russian State-owned Nuclear Corporation "Rosatom."

Rosatom has many international clients where it is building or signed a contract to build nuclear plants. It has taken on the responsibility to also train the young generation that will take over running and managing these plants, with MEPhI's help.

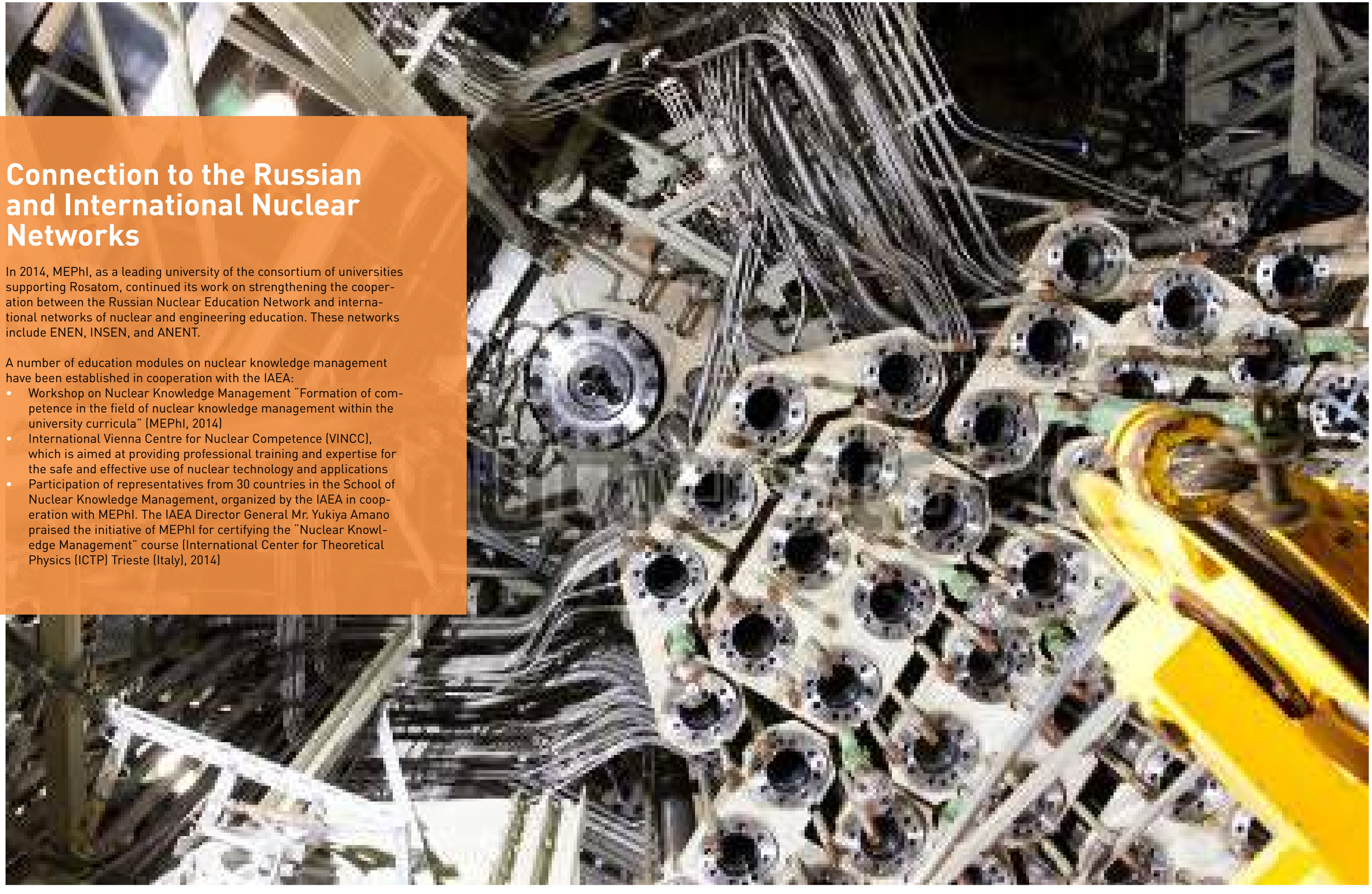
Today, MEPhI educates over 650 BS and MS students from all over the world, including Vietnam, Turkey, Kazakhstan, and Jordan in the program "Nuclear Plants: Design, Operation and Engineering". MEPhI also is a second home to 60 PhD students from 24 countries, including China, Argentina, Armenia, Uzbekistan, etc. Short-term exchange programs for foreign scientists, specialists and students at MEPhI are conducted on a regular basis.

Connection to the Russian and International Nuclear Networks

In 2014, MEPhI, as a leading university of the consortium of universities supporting Rosatom, continued its work on strengthening the cooperation between the Russian Nuclear Education Network and international networks of nuclear and engineering education. These networks include ENEN, INSEN, and ANENT.

A number of education modules on nuclear knowledge management have been established in cooperation with the IAEA:

- Workshop on Nuclear Knowledge Management "Formation of competence in the field of nuclear knowledge management within the university curricula" (MEPhI, 2014)
- International Vienna Centre for Nuclear Competence (VINCC), which is aimed at providing professional training and expertise for the safe and effective use of nuclear technology and applications
- Participation of representatives from 30 countries in the School of Nuclear Knowledge Management, organized by the IAEA in cooperation with MEPhI. The IAEA Director General Mr. Yukiya Amano praised the initiative of MEPhI for certifying the "Nuclear Knowledge Management" course (International Center for Theoretical Physics (ICTP) Trieste (Italy), 2014)



Collaboration with International Universities and Organizations

MEPhI has widely developed international educational and scientific relations with national laboratories, scientific centers, companies and universities all over the world.

MEPhI partners with the following universities from student and faculty exchanges to double degree diplomas and research collaboration. Here is a short snapshot of the partners:

- In the USA: Massachusetts Institute of Technology, University of Maryland, Stanford University, Texas A&M University, University of California San Diego, Oregon State University;
- In the UK: Cambridge University, Lancaster University;
- In Germany: Center of Synchrotron Research in Hamburg (DESY), Karlsruhe University, Hochschule Hannover; Gottingen University, network of Max Planck research institutes, University of Tübingen;
- In France: J. Fourier University in Grenoble, Saclay Nuclear Research Center, National Engineering School of Saint-Etienne, University of Bordeaux and others;
- In Japan: Waseda University in Tokyo, Hokkaido University, Tokyo Institute of Technology, University of Aizu;
- In the Netherlands: University of Twente;
- In China: Tsinghua University;
- In Sweden: Royal Institute of Technology (KTH)
- In Italy: National Institute of Nuclear Physics in Rome, Materials and Devices for Microelectronics National Laboratory, International Center for Relativistic Astrophysics, Institute of Atmospheric Sciences and Climate; Università degli Studi di Roma Tor Vergata

Joint Educational Programs Started In 2014

Program	University Partner
Materials in extreme conditions	MIT (USA)
Nanotechnology	UNIKO (Germany)
Graphene electronics	RWTH (Germany)
Design of microelectonic component base	TUD Dresden (Germany)
Computer simulation of materials for energy technologies	Aalto University (Finland) MIT (USA) Institute for Energy Technology (Norway University College of Telemark (Norway) University of Exeter (UK)
Femtosecond laser physics and technology	Beijing Institute of Technology (China)

In 2014, in order to develop international research and educational programs, a number of partnership agreements on academic mobility, including agreements on “double diploma” were made

MEPhI new educational partners

- Argonne National Laboratory (USA)
- Enrico Fermi National Accelerator Laboratory (USA)
- University of Illinois (USA)
- University of Surrey (UK)
- Politecnico di Torino (Italy)
- Federal University of Rio Grande do Sul (Brazil)
- University of Nebraska, Lincoln (USA)
- 8th Research Institute (China)
- International Organization of the ITER on fusion Energy
- Baku State University (Azerbaijan)
- National Laboratory of Legnaro (Italy) and etc.
- Politecnico di Torino - University of Turin (Italy)
- University of Illinois (USA)
- University of Nebraska,Lincoln (USA)
- University of Surrey (UK)

Educational Programs In Cooperation With The Leading Universities And Scientific Centers

2014 Figures And Facts

8

TIMES MORE EDUCATIONAL PROGRAMS HAVE BEEN INTRODUCED IN COOPERATION WITH THE LEADING FOREIGN AND RUSSIAN UNIVERSITIES AND SCIENTIFIC ORGANISATIONS

7

NEW CURRICULA OF “DOUBLE DIPLOMA” HAVE BEEN DEVELOPED

389

STUDENTS ENROLLED IN JOINT CURRICULA (FOREIGN - 50,9%, RUSSIAN - 49,1)

39

JOINT BASIC EDUCATIONAL PROGRAMS

284

PEOPLE STARTED THEIR TRAINING IN JOINT PROGRAMS (18% OF THE INTAKE PER YEAR)

4

TIMES MORE FOREIGN FACULTY MEMBERS

25

JOINT CURRICULA PROVIDING MUTUAL CREDIT RECOGNITION

Relationship with the Russian Academic Community and Government

MEPhI has many connections to fellow Russian technical universities and along with them, federal organizations.

62

INSTITUTIONS AND RESEARCH CENTERS OF RAS (THE RUSSIAN ACADEMY OF SCIENCES) PARTICIPATE IN JOINT RESEARCH PROJECTS

Центральный банк России

Федеральная служба по техническому и экспортному контролю

ВНИИ автоматики им. Духова, г.Москва

Министерство иностранных дел Российской Федерации

Министерство обороны Российской Федерации

Всероссийский научно-исследовательский институт экспериментальной физики, г. Саров

Федеральная служба безопасности Российской Федерации

Министерство внутренних дел Российской Федерации

Федеральная служба по экологическому, технологическому и атомному надзору

Федеральная служба военно-технического сотрудничества Российской Федерации

Министерство образования и науки Российской Федерации

Российский Федеральный Ядерный Центр

Федеральная служба по финансовому мониторингу

Российский научный центр «Курчатовский институт», г. Москва

Московский радиотехнический институт

Федеральная служба внешней разведки

Научно-исследовательский институт энерготехники и конструкций имениН.А. Доллежаля, г. Москва

Объединенный институт ядерных исследований, г. Дубна

VI.
10 Reasons to Choose MEPhI

1.

A world leading university in nuclear education and research

2.

A world leading university in nuclear education and research

3.

A world leading university in nuclear education and research

4.

A world leading university in nuclear education and research

5.

A world leading university in nuclear education and research

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A world leading university in nuclear education and research

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A world leading university in nuclear education and research

8.

A world leading university in nuclear education and research

9.

A world leading university in nuclear education and research

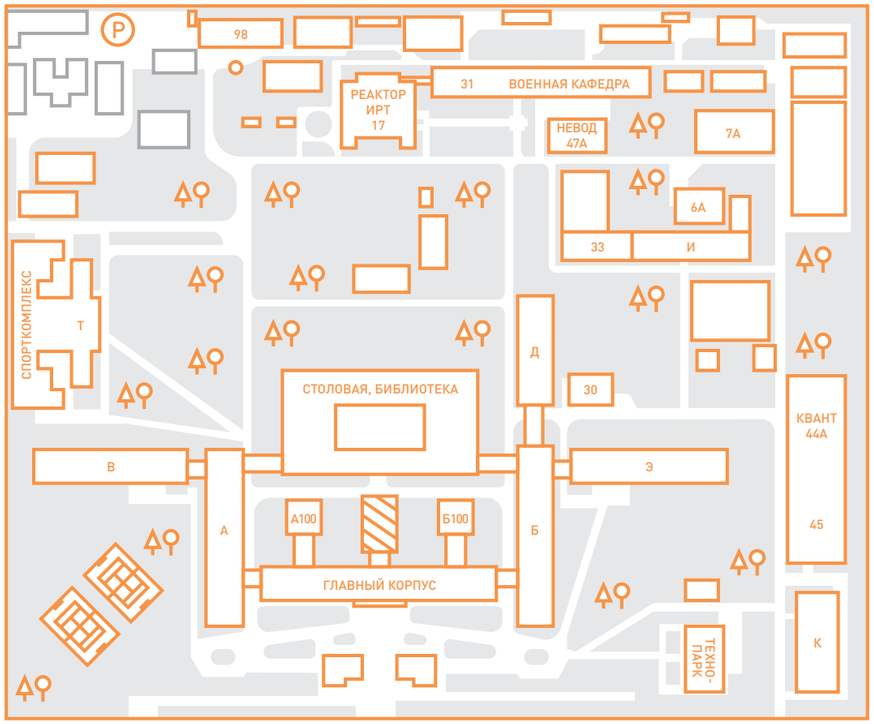
10.

A world leading university in nuclear education and research

VII. Campus and Research Center Laboratories

Campus and Library

MEPhI Campus – your future home



Каширское шоссе

Учебные корпуса Гараж МИФИ Актовый зал и научная библиотека

DID YOU KNOW? MEPHI'S LIBRARY HAS A SPECIAL COLLECTION OF ALL PUBLICATIONS OF MEPHI-STS, EVEN DATING BACK TO THE 1940'S.

MEPhI is located on the southern side of Moscow, a 15-minute walk from Metro Kashirskaya, on the dark green line. It is situated behind Kolomenskii park. This all lies next to the Moscow River, so you have plenty of space to roam around while you are connecting the dots in your mind about your next discovery.

The campus has 57 buildings and a total area of over 96,000 square meters. The campus is a secured territory with lecture halls, library, laboratories, a XXX-person auditorium, and the IRT nuclear reactor. You have a sports facility behind the main building, fully equipped with weight-training equipment, a dance hall, and XXX.

MEPhI Library

The MEPhI library is one of the largest university libraries in Russia, geared towards the needs of its readers. It provides MEPhI students, faculty, and affiliates with access to a broad collection of printed and electronic materials. Journal access includes: Elsevier, EBSCO publishing, Web of Science, JSTOR, eLibrary, Nature, ASC Publications, American Physical Society, Cambridge Journals Online, etc.

Labs and Equipment

Laboratories of Leading Scientists

Nano-Bioengineering Lab
MEPhI is on its way to establishing a world-class lab for producing hybrid nano-biomaterials, combining the approaches of the best nano-bioengineering methods and MEPhI's experience in energy to study the process of transmitting energy and superfast processes. The results are expected to improve the processes of producing bio-fuel and photovoltaics.

Electromagnetic Methods for Producing New Materials Lab
World-recognized Professor Evgeny Olevsky launched this lab in 2011. The research scope of the lab captures spark-plasma and microwave spectra technology , high-voltage impulse compacting and magnetic-impulse consolidation of powders.

Experimental Nuclear Physics Lab
The goal of the project is to develop a new generation nuclear detector, using the concept of coherent scattering effect of heavy Xe nuclides to improve the sensitivity to antineutrinos in reactors.

Plasma Interactions with the Surface of Plasma Technologies Lab
Professor Sergey Krasheninikov is setting up this lab from the University of California San Diego, USA.

Unique Equipment

There are also many hidden gems of equipment across the centers. Here are a few:

Neutrino Water Detector (NEVOD)
Experimental assembly used for detecting cosmic rays on the Earth's surface. It has a Cherenkov detector with a volume of 2,000 cubic meters and a coordinator detector with a high spatial and angular resolution area of 70 square meters.

Accelerator Facility
The accelerator at MEPhI has the capacity to accelerate electrons and ions to levels of restructuring the beam characteristics without compromising on the quality, as well as a unique power of compressing the RF field power.

MEPhI IRT-2000 Research Reactor

The IRT-2000 is a 2.5MW pool-type reactor, launched in 1967. The reactor is under oversight of the Russian nuclear regulatory body as well as the International Atomic Energy Agency (IAEA).

Some of the research projects it is used for include reactor and neutron physics, radiation physics, semiconductors, dielectrics, condensed state physics, as well as neutron analysis of nano materials. Beyond that, the facility is used for research in medical physics, specifically neutron capture cancer therapy.

The reactor also serves an important role in educating the MEPhI students by providing a first-hand experience of a nuclear reactor up close and personal. It is open to its community for tours, and the students can conduct thesis projects at the IRT.

COOL FACT
NEUTRON CAPTURE THERAPY PROGRESS @MEPHI

Main characteristics of the MEPhI IRT-2000:

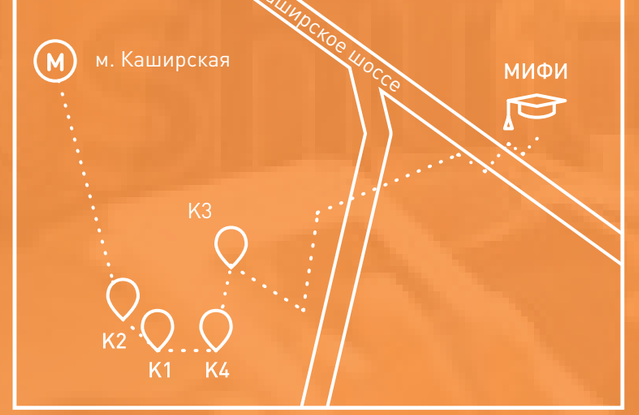
Characteristic	Value
Power (MW)	2.5
Number of fuel assemblies	16
Volume of the reactor core (liters)	50
Maximum fast neutron flux density in the reactor core >0.8 MeV (n/cm2s)	4.3×1013
Maximum thermal neutron flux density in the reactor core <0.8 MeV (n/cm2s)	4.8×1013
Neutron density in the reflector (n/cm2s)	4.7×1013
Number of experimental channels	up to 20

The results of the work done at the MEPhI IRT reactor have been captured in more than 60 publications and presented at 9 Russian and 8 international conferences, including the VIII-XIII Congresses for Neutron-Capture Cancer Therapy. Three patents have also come out of this work.

Housing Facilities

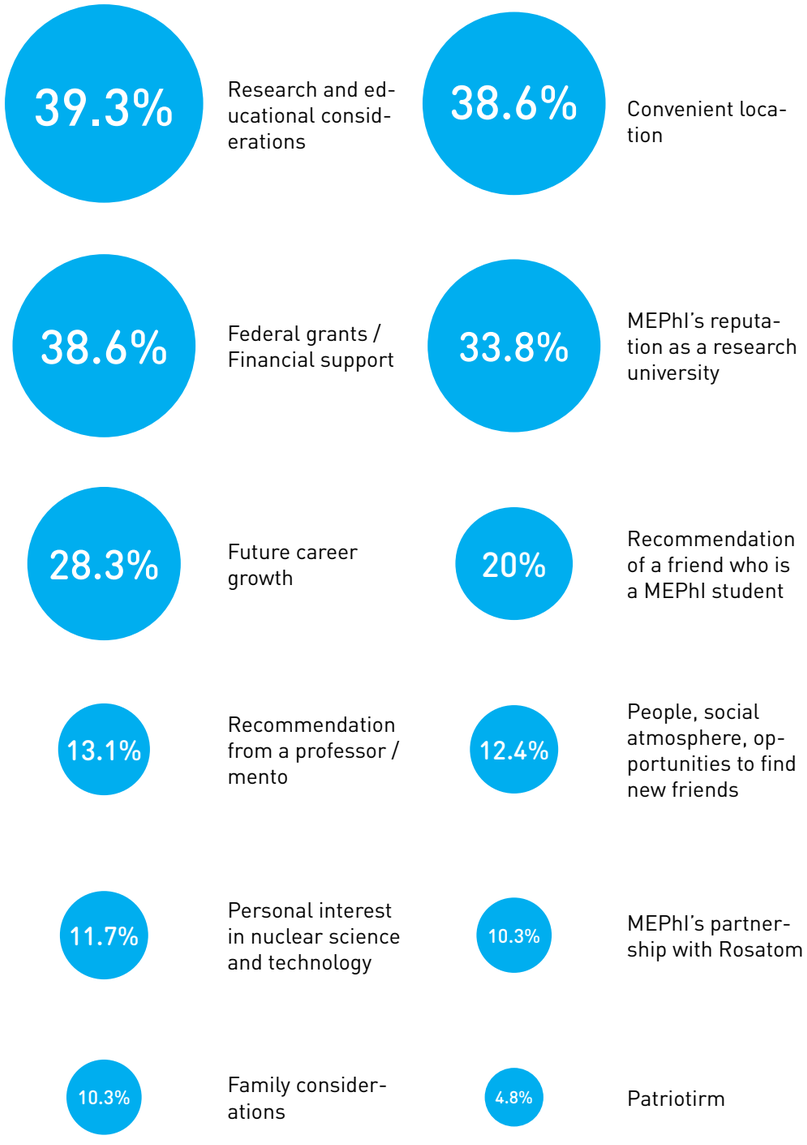
MEPhI offers contemporary and comfortable housing facilities, including apartment rooms and a hotel, for its students, international faculty, and visitors. The apartment complex for mid and long-term stays is located at a 15-minute walk from campus.

Each apartment has furniture for work and leisure, kitchen equipment, private bathroom, and a windowed balcony. The first floor of the apartment complexes have a canteen and fitness facilities. There is Internet throughout the building and security at the front desk.



VIII. Who are these MEPhI-sts?

Why have students chosen MEPhI?



Faculty Profiles

Profile #1

ПРО ВАС

1. ФИО
Михайлов Дмитрий Михайлович
к.т.н., доцент НИЯУ МИФИ, начальник Инжинирингового центра НИЯУ МИФИ, руководитель Центра «Защищенные инфокоммуникационные технологии и системы. Кибербезопасность.» (Центр Кибербезопасности), выпускник MBA Warwick University (Великобритания).

2. Откуда родом?
Москва

3. Почему вы выбрали МИФИ?
Душа всегда больше лежала к технике, для меня уже в школе было понятно, что за технологиями будущее. Ну а МИФИ всегда был вузом с именем, историей. Университетом, где не просто учиться, а значит интересно. Когда меня заинтересовал инновационный процесс, как явление, а не только разработка, я получил второе образование тоже в МИФИ (в экономико-аналитическом институте) и усилил его получением MBA в Великобритании, куда попал по программе сотрудничества МИФИ–University of Warwick (Великобритания)

4. Ваша карьерная траектория
- Моя профессиональная деятельность началась в ЗАО «Всероссийский научно-исследовательский институт автоматизации в непромышленной сфере» в 2004 году. Я успел поработать техником, программистом, инженером-программистом и научным сотрудником.
- С 2008 по настоящее время работаю в НИЯУ МИФИ в должности доцента кафедры «Информационные системы и технологии».
- В рамках преподавательской деятельности читаю авторские курсы:
- Организация R&D центра и модель управления
- внедрением инновациями (на английском языке)
- Международное взаимодействие в области высоких технологий
- С 2009 года начал развивать под своим началом конструкторское бюро на базе 12 кафедры факультета "Кибернетики" НИЯУ МИФИ (Конструкторское исследовательское бюро (СКИБ-6)).
- В 2013 году при поддержке Минпромторга и Минобрнауки России КБ было преобразовано в Инжиниринговый центр НИЯУ МИФИ.
- В 2013 году был создан Центр Кибербезопасности, работа которого была посвящена вопросам кибернетической безопасности как выделенному направлению работ.
- К 2015 году Центр насчитывает более 100 инженеров, 2 филиала в России и 5 представительств за рубежом.

5. Ваши научные интересы, направление научной работы
Мои научные интересы отражаются в моей работе:

- Информационные технологии
- Информационная безопасность
- • Управление инновациями

6. Собственные разработки, инновации (если есть)
- АПК «ЩИТ»–первый в мире аппаратный антивирус для АСУ ТП, распространяется компанией Натальи Касперской InfoWatch , в том числе за рубежом;
- Первое программное средство защиты мобильного телефона от прослушивания Green Head, распространяется под брендом Yota;
- Антивирусная система для бортового компьютера автомобилей;
- Российская эндоскопическая капсула «Ландыш». Инвесторами проекта стали НИЯУ МИФИ, АФК «Система», ГК «Росатом». По поручению ректора для работы над этим проектом Инжиниринговый центр создал в университете первое мелкосерийное высокотехнологичное производство.
- Под моим авторством и соавторством опубликовано:
- более 70 научных статей
- 9 монографий и учебно-методических пособий
- 7 патентов в России и за рубежом
- Получено более 15 Свидетельств о регистрации программ для ЭВМ

7. Три вещи, которым Вы научились во время работы в МИФИ / чему удивились в процессе работы в МИФИ
Работа научила меня находить подход к людям разных интересов, культур и возраста. МИФИ удивил большим количеством талантливых и инициативных людей и среди студентов, и среди преподавателей, и среди научных сотрудников.

8. Любимая цитата / Ваш кумир
Люблю слова коллег, с которыми разрабатывали Green Head, сказанные после встречи с хедхантерами Google: «Да, мы можем продать технологию в США и ждать, что они когда-то вытащат ее «из стола» и назовут американской. А можем сейчас сами сделать из этого продукт, и не скрывать, что разработали его мы».

ПРО ЦЕНТР

1. Какой Вы представляете главную цель Вашего Центра?
Ключевая задача центра–быть удобной площадкой для взаимодействия науки, промышленности, государства и бизнеса, для международных контактов в области безопасных информационных технологий.

2. Почему Вы захотели стать директором Центра?
Я уверен, что защищенные информационные технологии должны развиваться на открытой площадке, особенно когда идет интеграция с научными центрами стран БРИКС. Мне хотелось принимать непосредственное участие в данном процессе.

3. Зарубежные организации и университеты, с которыми ведется сотрудничество в науке, образовании, инновациях и пр.
- Vanderbilt University
- MIT
- University of Twente
- Tsinghua university
- Bahrain Polytechic
- Intel

- Schneider Electric
- Siemens
- Apple
- Texas Instruments
- Nvidia

4. Сотрудничество с индустрией, правительством (если есть)
ГК «Росатом», Минпромторг, Минобороны, АФК «Система», ГК «Ростех», ГК «Роскосмос», ОАО «РЖД», InfoWatch, Лаборатория Касперского, YotaDevices

5. Описание команды Центра (культура, состав студенты / НПР)
Более 80% сотрудников центра–это инженеры, которые начинают свою работу в центре еще студентами. Большая часть–это мифисты, но есть и представители других российских и зарубежных вузов. Остальные 20%–это все те, кто помогает ученым и разработчикам делать их работу комфортной: патентоведы, дизайнеры, управленцы. В работе участвуют и сторонние эксперты, которые оценивают и контролируют профильные для них сферы: медики, физики, биологи, бизнесмены и другие специалисты. Около 25% сотрудников продолжают свое обучение в аспирантуре и получают степени кандидатов и докторов наук, связывая свои диссертации с тематикой работы в центре.
За последний год к нам пришли инженеры, уже имеющие большой опыт работы в других компаниях. Это всегда полезный взгляд со стороны, другой подход к работе и сильный стимул развиваться для тех, кто у нас только начинает свою карьеру.

6. Последние достижение Центра за 2014-2015 гг.
- Разработана и успешно внедрена стратегия White Label. Решения центра продаются под брендом известных не только в России компаний Yota, InfoWatch и др.
- Проекты центра стали призерами и победителями ряда крупных конкурсов инноваций: Russian StartUp Tour, UniverStartUp, Startup Village и других;
- Совместно с ГК «Росатом» начат запуск завода по промышленному выпуску

  аппаратных средств защиты.

ВАШЕ МНЕНИЕ:

С какими представителями Вашего Центра или института в целом (студенты / НПР) Вы бы посоветовали провести интервью, для отображения их профилей в первой или последующей версиях буклетов?
- Представители малых инновационных предприятий МИФИ
- Студенты, работающие в МИПах, на кафедрах, в лабораториях или Центрах

Profile #2

ПРО ВАС:

1. ФИО
Калин Борис Александрович

2. Откуда родом
г. Шатура, Московской области

3. Почему Вы выбрали МИФИ
Известный Вуз с высокой стипендией для студентов, что очень важно для человека, отслужившего на флоте 4 года.

4. Ваша карьерная траектория:
Вся карьера–это карьера в МИФИ: студент, инженер, аспирант, старший инженер, ведущий инженер, старший научный сотрудник +старший преподаватель (на 0,5 ставки по кафедре 21), директор завода "Квант" МИФИ+доцент (0,5), заведующий кафедрой №9

5. Ваши научные интересы, направление научной работы -
Это физическое материаловедение, радиационное материаловедение, современное материаловедение

6. Собственные разработки, инновации (если есть)
Это более 550 публикаций, включая около 30 изобретений и патентов в области разработки новых материалов и технологий их обработки

7. Три вещи, которым Вы научились во время работы в МИФИ, чему удивились в процессе работы в МИФИ?
Не очень понятный (детский) вопрос, т.к. за 50 лет работы научился всему, что имею и умею.

8. Любимая цитата / Ваш кумир
В науке тесно дуракам!
Мой уважаемый учитель -профессор Скоров Дмитрий Михайлович–руководитель первой отраслевой лаборатории в МИФИ–лаборатории №7, в которой я начал свой трудовой путь в МИФИ

ПРО ЦЕНТР

1. Какой Вы представляете главную цель Вашего Центра?
Целью создания Центра является повышение качества подготовки молодых специалистов и специалистов высшей квалификации на основе результатов прорывных исследований мирового уровня в области физического материаловедения, разработки методического обеспечения образовательного процесса, включая новые образовательные программы и методики с учетом международных стандартов, повышения качества инженерной подготовки, развития методик дистанционного обучения, развития научных фундаментальных исследований в области материаловедения, создания баз данных по радиационной стойкости, состоянию и свойствам материалов, развития международного сотрудничества в области образования и научных исследований.

2. Почему Вы захотели стать директором Центра?
Директора назначает ректор

3. Зарубежные организации и университеты, с которыми ведется сотрудничество в науке, образовании, инновациях и пр.
№ п./п. Страна Организация Фамилия, имя (англ.) ученого, область науки*

1. USA Massachusetts Institute of Technology Ju Li Ron Ballinger Sidney Yip
2. Finland Aalto University Hannu Hanninen Risto Nieminen
3. Finland University of Helsinki Kai Nordlund
4. Sweden Royal Institute of Technology Pavel Korzhaviy
5. Germany Karlsruhe Institute of Technology Pavel Vladimirov, Anton Moslang
6. UK University of Oxford Sergei Dudarev
7. USA San Diego State University Eugene A. Olevsky
8. France Paul Verlaine University–Metz Francis Wagner Claude Esling
9. Germany Max-Planck-Institute GmbH Stefan Zaefferer
10. Germany Clausthal Technical University Heinz-Günter Brokmeier
11. Germany RWTH Aachen University Günter Gottstein
12. Poland Institute of Metallurgy and Materials Science, Cracow Jan Bonarski
13. Canada McGill University Jerzy Szpunar

4. Сотрудничество с индустрией, правительством (если есть)

Основные партнеры Центра в РФ: ГК Росатом, АО ТВЭЛ, АО ВНИИНМ, ВНИПИЭТ, ОАО МСЗ, ОАО ЧМЗ, ИБРАЭ, НИИАР, ФЭИ, НПО ЛУЧ, НИКИЭТ, НИИЭФА.

Например, только по внедрению быстрозакаленных сплавов в разные годы проделаны следующие работы:

Организации Направления применения быстрозакаленных сплавов

НИИАР - в 90-х годах : пайка измерительных устройств в каналах экспериментальных реакторов;

- пайка переходников Zr-сталь.

ВНИИЭФ - пайка металлокерамических узлов

ФЭИ - ежегодные поставки БЗП для пайки спец изделий;

- пайка переходников Ti-сталь.

ПО СТАРТ - поставка припоев для пайки экспериментальных образцов.

НПО «ЛУЧ» - экспериментальная пайка коллекторных пакетов ТЭП космических ЯЭУ

НИКИЭТ - высокобористая нейтронопоглащающая лента БЗП для плакирования стали;

- технология получения резьбопаяных соединений: нимоник-Mo;
- пайка Mo-Mo для космической ЯЭУ.

ТК ТВЭЛ - пайка ЦДР ВВЭР 440 и стальных навивных антидебризных фильтров ВВЭР 440 (совместно с ОАО МСЗ);

-пайка спец.инструмента (для ОАО ЧМЗ).

НИИЭФА -пайка элементов дивертора и первой стенки реактора ИТЭР.

5. Описание команды Центра (культура, состав студенты / НПР)

Персонал	2014/15	
Центр, чел	Средний возраст	
1. Преподаватели штатные	22	53
2. Преподаватели совместители		19
3. Учебные инженеры	15	45
4. Научный и инженерный персонал	53	38
5. Аспиранты	23	
ВСЕГО	80-90	

Доктора наук – 7 + (6)

Кандидаты наук – 19+3+(6)

Студенты старших курсов Ф5-Ф12 (источник кадров):

Student Profiles

Let’s meet some students!

Кристина Мормулевская

Россия, Москва
У (ЭАИ), 5 курс.
Кафедра № 72 Управление бизнес-проектами

Исследовательский проект – управление мотивацией как фактором повышения эффективности деятельности в научно-исследовательской среде

— Почему ты выбрала МИФИ?

— Я выбрала МИФИ случайно, у хорошего школьного друга была династия МИФИстов – вся семья закончила МИФИ, он поехал подавать документы на традиционный для них факультет А, и позвал меня с собой, у меня как раз оставался комплект документов для одного вуза. Моим приоритетным направлением было Искусствоведение в МГУ им. М.В. Ломоносова, но я прошла на бюджет только на вечернее отделение и решила, что откажусь от вечернего факультета в пользу очного образования в ядерном университете. С тех пор ни разу не пожалела о том решении!

— В каких студенческих активностях ты участвуешь?

— В университете уже 5 лет развиваю культуру, волонтерство и общевузовские проекты, направленные на улучшение студенческой жизни. Очень важно делать что-то для других, поэтому я считаю, что полноценный студент университета должен чувствовать себя активным субъектом университета, способным совершенствовать многие процессы, помогать в развитии другим студентам и развиваться самому.

— Пройденные стажировки, практики, опыт работы во время обучения

— Во время обучения по своей специальность я проходил стажировку в консалтинговой компании «Лидер», занимающейся страхованием жизни на Российском рынке, предлагая международные страховые продукты. После введения в специальность производственная практика проходила в центральном офисе ГК Росатом в проектном офисе по внутренним коммуникациям и повышению вовлеченности, за 1 месяц полностью погрузилась во многие процессы главного офиса, удалось поучаствовать в сборе обратной связи от сотрудников по лучшим практикам общения с персоналом, выстраивания корпоративной культуры, основанной на общих ценностях.

Преддипломную практику я проходила в Управлении молодежной политики в МИФИ, продолжая заниматься своей научной работой, разрабатывать мотивационные профили студентов, имеющих потребность в научном знании, и одновременно развивать студенческую активность в самоуправлении вуза.

— Как ты видишь себя после обучения в МИФИ?

— После обучения в МИФИ я вижу себя человеком, способным освоить любое знание, готовым постигать различные сферы жизни. После окончания университета приходит осознание, что это только начало постоянного обучения длинною в жизнь.

— 3 вещи, которым я научилась во время обучения в МИФИ?
Добиваться желаемого результата, а не жаловаться.
Ценить общие установки и ценностные ориентации с людьми, которые находятся в университете, университет дарит самых настоящих друзей, с которыми вы не только учитесь (как в моем случае), но и делаете общие проекты, работаете в выходные, отдыхаете вместе
Принимать осознание, что все возможно

— Любимое хобби
— Основное мое хобби – это преодоление трудностей. Все, чем бы я не занималась, я стараюсь доводить до конца, мне нравится, когда людям приятно со мной работать.
В сферу моих интересов входят искусство, музыка и живопись.
Профессионально занималась музыкой, гандболом, йогой.
Понемногу изучаю языки: английский, испанский и французский. Интересуюсь фотографией, Hand-made изделиями, а также различными дизайнерскими программами.

Вдохновляющая цитата или напутствие для поступающих в МИФИ от Кристины:
«Оставайтесь голодными. Оставайтесь безрассудными»–лучше еще никто не сказал ;)

Киседжик Атахан

Турция, город Измир
Факультет: Ф (Физико-технический), специалист (Проектирование и эксплуатация АЭС), 3 курс.

Исследовательский проект/направление научной работы — Проектирование и эксплуатация АЭС

— Почему ты выбрал МИФИ?
— Хочу содействовать в развитии ядерных технологий в своей стране. МИФИ предложил мне эту возможность.

— В каких студенческих активностях ты участвуешь?
Я участвую в организации клуба иностранных языков и Службы Добрых Дел.
Как ты видишь себя после обучения в МИФИ?
После обучения в МИФИ я планирую работать в Турции как инженер на АЭС.

— Чему ты удивился в процессе обучения в МИФИ?
— Разницей между преподавателями Советского времени и Современной Россией
Серьезному отношению МИФИстов к спорту
Занятиям в выходные дни. К сожалению, это иногда бывает очень тяжело.

— Любимое хобби
— Международная политическая и военная история, история науки Мифы
Философия

Вдохновляющая цитата или напутствие для поступающих в МИФИ от Атахана
Развитие человечества возможно только благодаря науке. Учись!

Абу Газал Айман Ахед

Иордания, город Зарка
Факультет: Ф (Ядерная физика и технологии), кафедра 18, первый курс Аспирантуры.

Исследование проект: Электрофизическая диагностика неразрушающего контроля материалов и сплавов

— В каких студенческих активностях ты участвуешь?
— Я член клуба интернациональности мифи, участвовал во многих мероприятиях и фестивалях. Организовал и проводил курсы по арабскому языку для всех желающих. Победил в номинации «Активист 2015 года» за развитие студенческого самоуправления.

— Как ты видишь себя после обучения в МИФИ?
— После обучения в МИФИ я вижу себя очень важным человеком в области ядерной физики.

— 3 вещи, которым я научился во время обучения в МИФИ:
— надо много заниматься, чтобы получить знания
оценки – не главное, важнее знания, которые ты приобрел.
- научился помогать людям.

— Любимое хобби
— чтение русских повестей и рассказов, изучение иностранных языков. Каждый день занимаюсь по русскому языку.

Вдохновляющая цитата или напутствие для поступающих в МИФИ от Аймана:
Я советую всем студентам поступать в МИФИ. МИФИ очень известный институт в области ядерной физики. Преподаватели МИФИ имеют большой опыт. Общежитие МИФИ очень комфортабельное и сотрудники МИФИ очень хорошо относятся к иностранным студентам.

IX. Life and Work in Moscow

Moving to Moscow

We will work one on one with you to ensure a smooth on-boarding process to MEPhI. This includes setting up your work visa, preparing a contract, facilitating the moving process and settling in when you get to Moscow, if you are moving full time.

You'll find all of the contemporary accommodations of top cities in Moscow. As you explore the city, you will find top-brand and bazaar shopping, all of the international cuisines, parks with ice skating rinks and small playgrounds behind your apartment, and much much more. If you are moving with a family, there are strong Russian and international schools for children in the city.

Culture of Moscow and Russia

Moscow is an exciting place. It is undoubtedly a global city with a population of 15 million people and runs 27 hours a day, 7 days a week.

Russia has a rich history. You can see it in the architecture, traditions, literary collections, art, and many other facets.

One of the greatest things you'll realize about Moscow is its public transportation infra-structure. The Moscow metropolitan–one of the best in the world. The trains go every 1.5 minutes at rush hour! Cheap tickets ($1/ride), clear layout, and no separation by region. Simple.

The unbearable cold and meters of snow and ice in Moscow is a myth. Although a third of Russia is beyond the Arctic Circle, most of the large cities are located in a comfortable climate, similar to Boston and Paris.

And we're sure you'll see this when you get here (if you haven't already) Russians are very hospitable and excited to welcome you to their homes.

What to do next?

So you're interested – great! What's the next step?

Go ahead and send a short note to XXXXXX and a bit about yourself. We will help answer your questions and connect you with the right people to get the ball rolling.

By 2020, MEPhI plans to have more than

14%

INTERNATIONAL FACULTY AND STAFF MEMBERS

21%

NTERNATIONAL STUDENTS

So get ready to become part of a dynamic group.

We look forward to having you join our family and energizing MEPhI.

NRNU MEPhI empowers the world's best nuclear tech experts and talented students to produce secure and stable energy, excel in creating applicable science, boost human capital and economic output in various fields, support industry and business, and be innovative and creative – as much as they want and can. Our overall mission is to energize and improve people's lives in Russia and globally.