

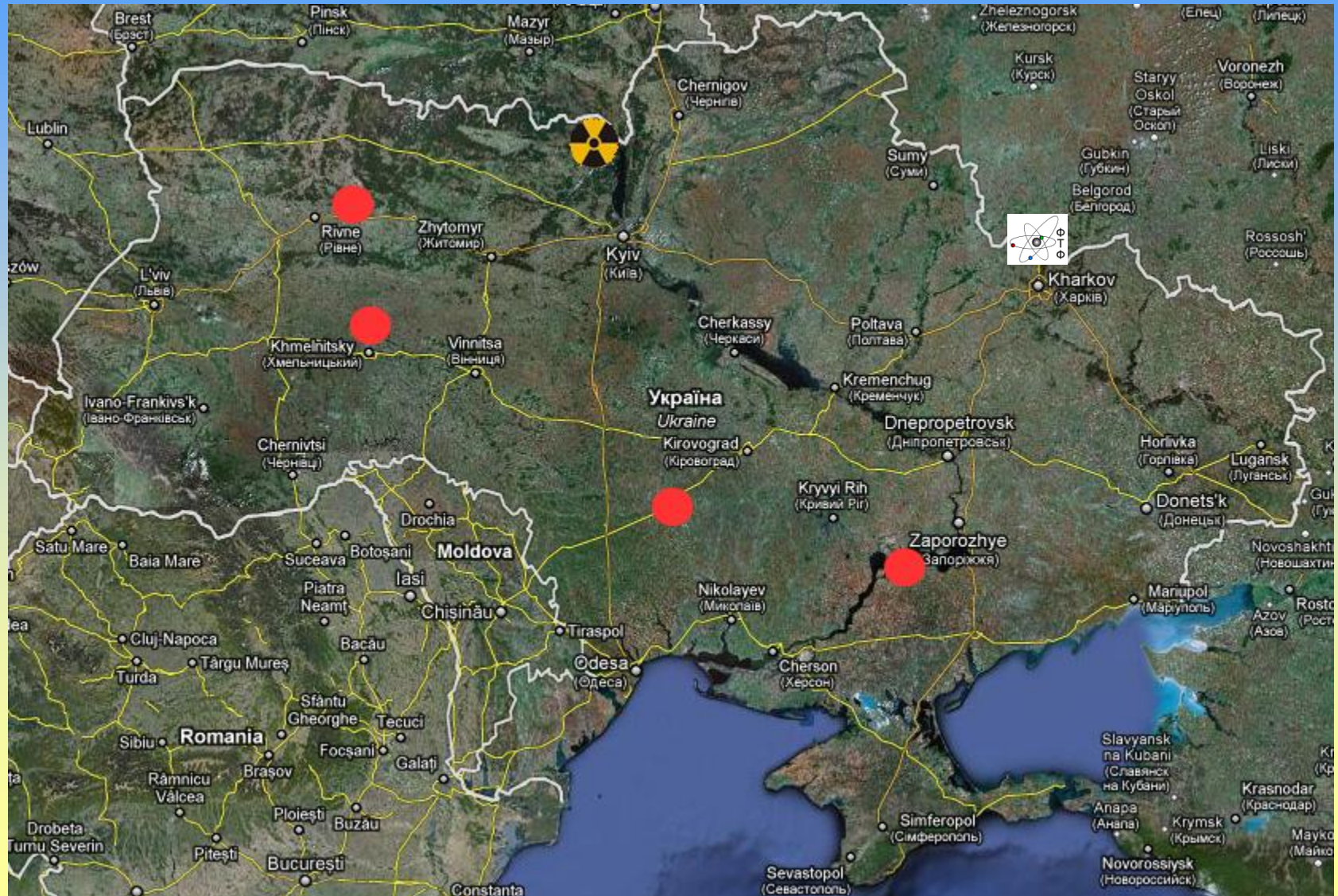
*V.N. Karazin Kharkiv National  
University*

*Kharkiv fiztech 2010-2011*

Territory of Ukraine is about  
603 700 km<sup>2</sup>



# 15 units function at 4 NPP of Ukraine





**Rivnenska NPP**



**Khmel'nitska NPP**



**Zaporiz'ka NPP**



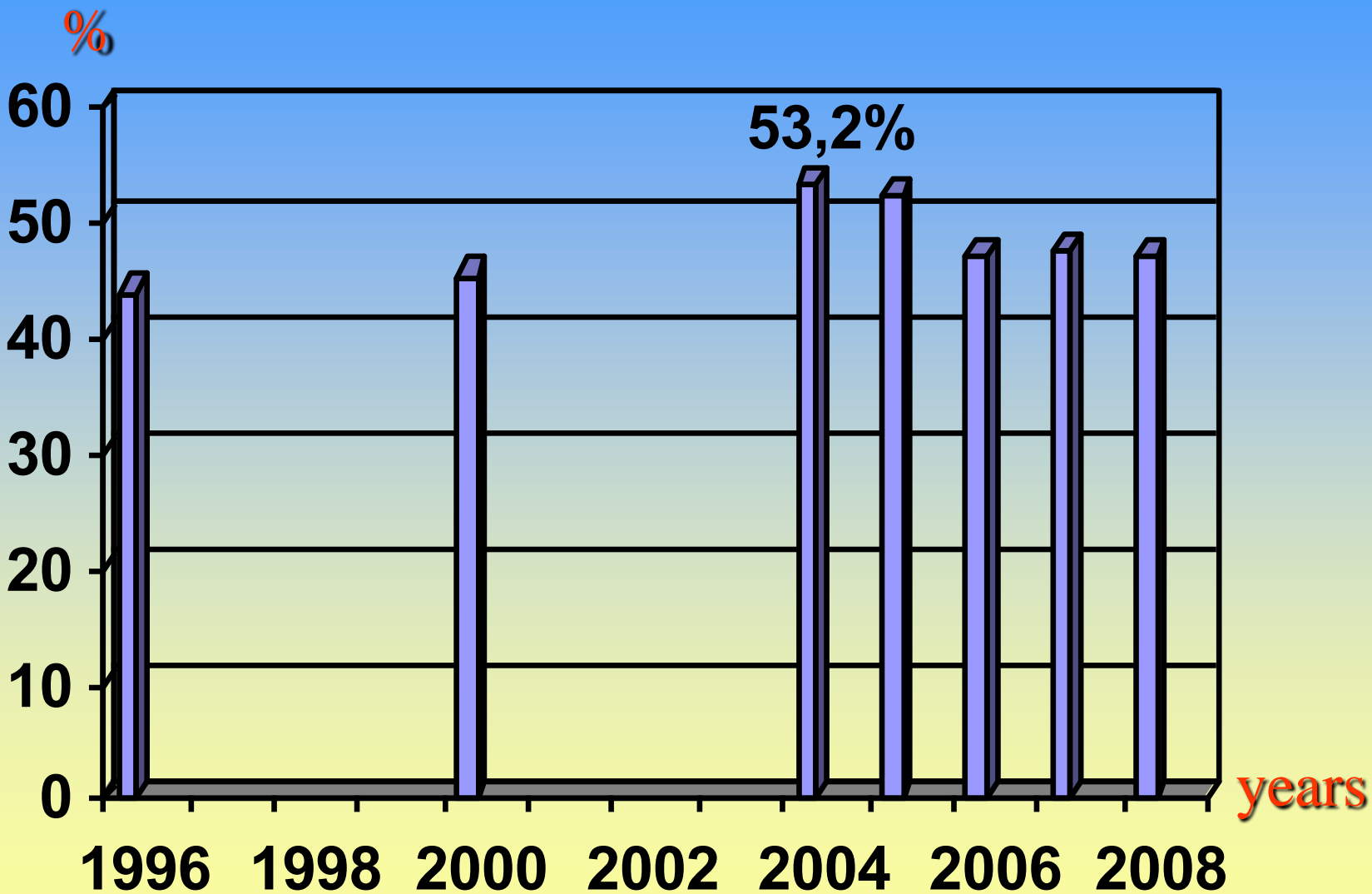
**Pivdennoukrajinska NPP**

Ukraine

## Chornobyl'ska NPP



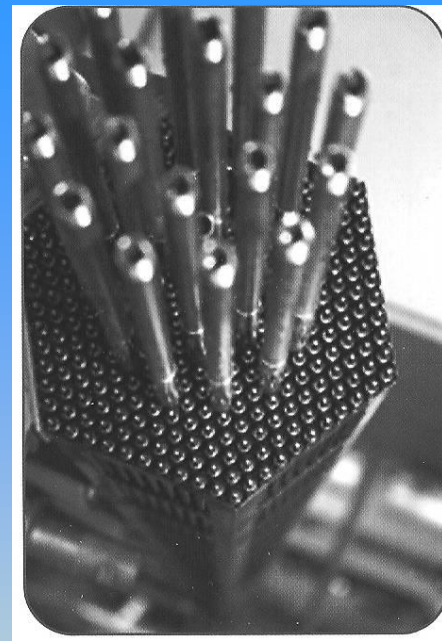
# About 50% of electricity is producing in Ukraine at NPPs



# Ukraine

**March 15th, 2006:** Ukrainian Government has adopted the “**Power Strategy of Ukraine for the period till 2030**”.

The Strategy foresees additional 21 GWatt power on 20 new nuclear power units. New spent fuel storages for WWER and RBMK reactor type were planned to be built in Ukraine.



**September 23th, 2009:** Ukrainian Government has approved the State target economic program "**Nuclear fuel of Ukraine**". The program is timed on 2009 - 2013. The program stipulates creation in Ukraine of enterprises for production of nuclear fuel and its units through the cooperation with other countries:

Increase in production of a concentrate of natural uranium up to 1880 tons a year,

Creation of a complete cycle for zirconium concentrate productions with release of zirconium flat with capacity of 170 tons a year,

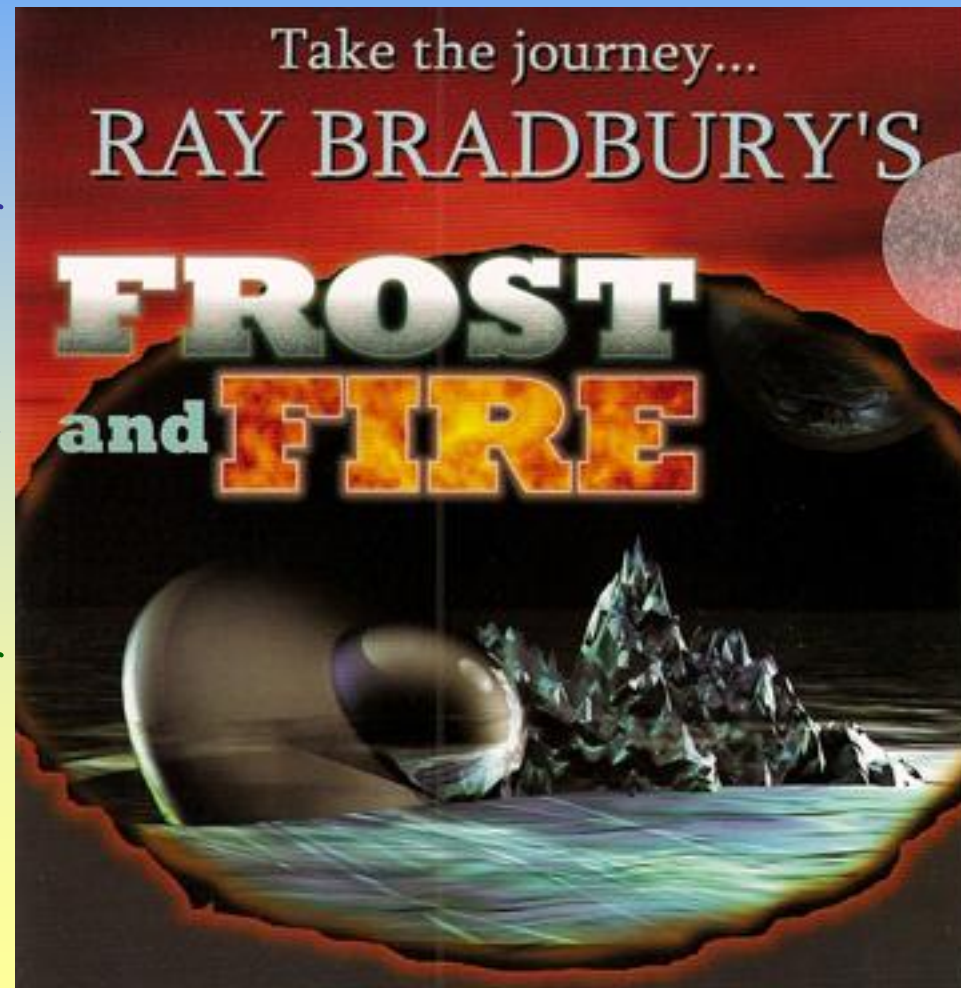
Creation of production of completing products for fuel assembly with capacity of 620 packages a year,

Construction of a factory on production fuel assemblies with capacity of 220 tons of enriched uranium a year.

# Ukraine

According to the Order of Ministry of Education and Science, all the **Ukrainian Universities accepted International Transfer Credit System** (ICTS). In Ukraine, several higher educational institutions are engaged in a professional training for the branch of nuclear power engineering. They are:

- Taras Shevchenko Kiev National University;
- National Technical University of Ukraine “Kiev Polytechnic Institute”;
- V.N. Karazin Kharkiv National University;
- Odessa National Polytechnic University;
- Sevastopol National University of Nuclear Energy and Industry;
- National Technical University «Kharkiv Polytechnic Institute» etc.





# Ukraine

All these Universities are of the fourth (the highest in Ukraine) accreditation level. Annually these universities prepare more than 600 young experts for nuclear branch. They are educated according to the following **educational programs**:

- Experimental Nuclear Physics and Physics of Plasma
- Mounting and Adjusting on Nuclear Power Plant
- Nuclear Power Engineering
- Biophysics of Complex Systems
- Physics and Chemistry of a Surface
- Audit in Energy and Energy Saving
- Physical Material Science
- Information Safety
- Applied Physics
- Medical Physics
- Nuclear Physics...

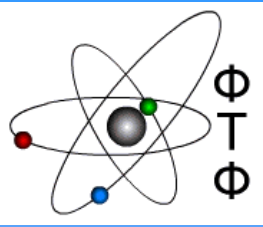


# Ukraine

## FOREIGN STUDENTS ENROLMENTS

Ukraine was one of the most developed industrial and scientific republics of the former Soviet Union. Youth from almost all former soviet republics studied at Ukrainian Universities. Net of so-called preparatory Departments was developed in Ukraine for preparing the foreign students (from Arabian countries, Africa, India, China and even Bulgaria, German Democratic Republic...) to studying at the Universities. Till now there is a developed infrastructure for teaching foreign students in Ukraine.





# Kharkiv 'Karazin' National University School of Physics and Technology

We participate in European programs: ENEN,

Our graduates continue their career within Erasmus-Mundus Fusion...

On March 4-6 2010, the **University was accepted to ENEN Association** as an Associated Member (like MEPhI) at the 8-th General Assembly meeting of ENEN.

Effective Members

The Effective Members are academic institutions or clusters of such institutions having a legal status and meeting all following criteria:

- Provide high-level scientific education in the nuclear field -as full time teaching and providing the bases for doctorate studies- based on internationally recognized research in nuclear engineering and/or nuclear sciences carried out jointly by the teaching staff, the students, doctoral and post-doctoral researchers in the same geographic location or in association with a nuclear research centre.
- Use selective admission criteria conforming with legal provisions and/or national practices.
- Be based in the European Union or in one of its candidate member countries.

New Effective Members are elected by the General Assembly, by a majority of two-thirds of the votes cast, on the recommendation of the Board of Governors, according to the criteria defined here above.

**LIST OF EFFECTIVE MEMBERS (31 MEMBERS AS OF MARCH 2009)**

Atominstytut der Oesterreichischen Universitaeten	ATI	Vienna, Austria
Katholieke Universiteit Leuven	KUL	Leuven, Belgium
Université Catholique de Louvain	UCL	Louvain-la-Neuve, Belgium
Ghent University	UG	Ghent, Belgium
Université Libre de Bruxelles	ULB	Brussels, Belgium
Vrije Universiteit Brussel	VUB	Brussels, Belgium
Czech Technical University in Prague	CTU	Prague, Czech
Helsinki University of Technology	TKK	Helsinki, Finland
Lappeenranta University of Technology	LUT	Lappeenranta, Finland
CEA-INSTN Centre d'Etudes de Saclay	INSTN	Saclay, France
Institut National Polytechnique de Grenoble	INPG	Grenoble, France
Ecole des Mines de Nantes	EMN	Nantes, France
Technische Universität München	TUM	München, Germany
Universität Stuttgart	IKE	Stuttgart, Germany
Clausthal University of Technology	TUC	Clausthal, Germany
Budapest University of Technology and Economics	BME	Budapest, Hungary
Consortium Interuniversitario per la Ricerca Tecnologica Nucleare	CIRTEN	Pisa, Italy
Delft University of Technology	DUT	Delft, The Netherlands



# V.N. Karazin Kharkiv National University

- Was founded in November 1804
- The opening ceremony was held on January 29, 1805
- There were any universities neither in St.Petersburg nor in Warsaw at that time





# V.N. Karazin Kharkiv National University

## RESEARCH CENTERS

- Astronomical Observatory
- Botanical Garden
- Research Institute of Biology
- Radiophysical Observatory
- Research Institute of Chemistry
- Natural History Museum
- Central Scientific Library
- ...

## SCHOOLS

- of Biology
- of Philosophy
- of Laws
- Medical
- of Economics
- of Foreign Languages
- of Mathematics and Mechanics
- of Radiophysics
- of Physics
- ...

## INSTITUTE OF HIGH TECHNOLOGY

Schools:

- **Physics and Technology**
- Computer Science
- Physics and Energy
- Chair of Biophysics and Medical Physics

Research Laboratories

# Харківський фізтех 2010-2011



University Ranking by  
Academic Performance



Country Ranking	University Name	World Ranking	Category	Article	H-Index	Citation	Google Scholar	Impact	Collaboration	Total
1	<a href="#">Kharkiv National University</a>	1415	B+	37.68	22.21	21.52	10.92	22.25	43.32	157.89
2	<a href="#">Ivan Franko National University of Lviv</a>	1761	B	10.09	14.79	8.38	9.35	10.96	28.88	82.45
3	<a href="#">National Taras Shevchenko University of Kyiv</a>	1996	B	3.19	11.08	6.27	3.56	6.22	12.20	42.52
1	<a href="#">Lomonosov Moscow State University</a>	134	A+	90.53	40.80	67.95	30.70	57.70	55.78	343.46
2	<a href="#">Saint Petersburg State University</a>	489	A	75.85	37.26	63.93	30.11	54.83	48.51	310.50
3	<a href="#">NOVOSIBIRSK STATE University</a>	1083	B+	72.96	28.58	41.05	15.40	47.51	45.04	250.54
4	<a href="#">SanktEPeterburgskij Gosudarstvennyj Politehniceskij Universitet</a>	1434	B+	31.09	25.39	32.77	5.22	21.07	37.97	153.52
5	<a href="#">Saratov State University</a>	1456	B+	36.42	26.98	21.59	11.32	21.68	29.88	147.88
6	<a href="#">Moscow Institute of Physics and Technology</a>	1522	B	35.17	19.03	19.75	12.75	21.62	23.90	132.22
7	<a href="#">TOMSK STATE University</a>	1527	B	49.27	13.73	12.63	15.60	14.90	24.28	130.41

# Kharkiv 'V.N. Karazin' National University



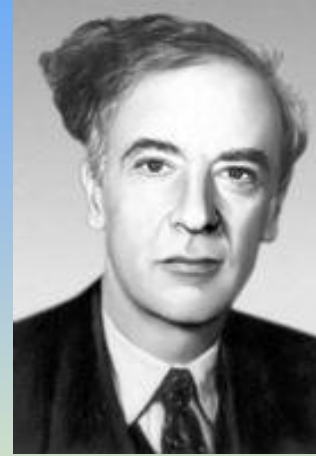
M. Ostrogradsky



O. Lyapunov



V. Steklov



L. Landau



I. Lifshits

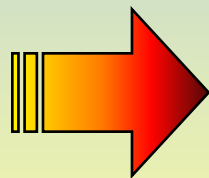
Kharkiv University is well-known all over the world due to its alumni and Professors, especially in the field of Physics and Mathematics. Among those who brought a glory to the University one has first of all to mention Ostrogradsky, Lyapunov, Steklov, Landau, Lifshits, etc.

# Ukraine

There was a significant difference in arrangement of scientific research in the former Soviet Union and other world. Whereas in USA science is concentrated in Universities and National laboratories, in USSR science was excluded from the Universities, and Academy of Sciences was given the role to do science. Moreover, in 1921 in Ukraine, all the universities have been liquidated in principle, unlike Russian SFS Republic, where universities have been saved. This decision was based on erroneous explanation: the universities were considered as the most conservative form of old higher education. The Soviet Government has corrected this error in 1933 only.



Science  
&  
Education



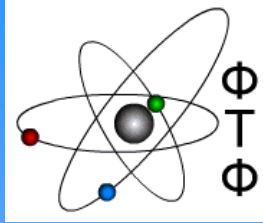
Science  
&  
Education



In 1946, it appeared that those University graduates who were taught by so-called “red” Professors are incompetent to take part in **Soviet Atomic Project**. As the result the Soviet network of Nuclear Education was produced. Kharkiv University was lucky to become a part of this network due to its well-known scientific schools in Physics and Mathematics.

*Crucial point:* in contrast to the most other schools of Soviet Universities, School of Physics and Technology was founded at Kharkiv State University in 1962 at the initiative and in close collaboration with **National Science Center “Kharkiv Institute of Physics and Technology”**. In the Soviet Atomic project it was called as **Laboratory No. 1**. (Kurchatov Institute of Atomic Energy was the Laboratory No. 2).

# School of Physics and Technology



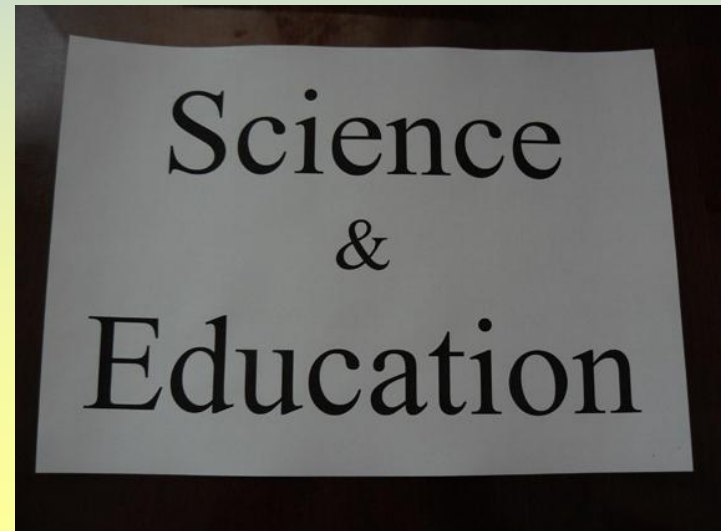
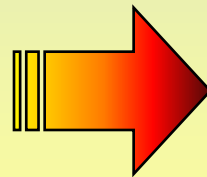
## *NSC KhPhTI*

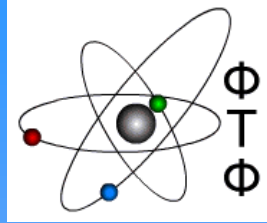
NSC had given buildings, as well as scientific and educational equipment to the School.

16 Professors – leading scientists of NSC are lecturing at the School, among them **8 academicians and member-correspondents of the National Academy of Sciences.**

Most of our graduates continue their scientific career at NSC.

Professors of the School carry out scientific research in close collaboration with scientists from NSC.



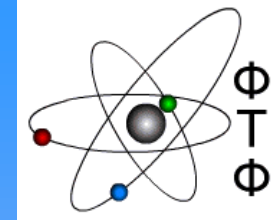


## *Our business card*

- 1/3 graduates of the School have defended their Candidate thesis. Among the graduates there are :
- 26 academicians and member-correspondents of the National Academy of Sciences,
- 2 Heroes of Socialist Labor,
- over 60 winners of different prizes: Lenin, State USSR, State Ukraine, the prizes of the Academy of Sciences.
- each year our students are among the winners of All-Ukrainian students' tournaments in Physics.



# Kharkiv 'V.N. Karazin' National University, Institute of High Technology, School of Physics and Technology



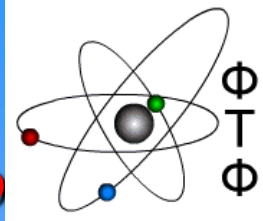
## *K. Sinelnikov*

(1901) was a head of Soviet experiment on splitting the lithium nucleus in October, 1932. The experiment was carried out at Kharkiv Institute of Physics and Technology (NSC KhPhTI).

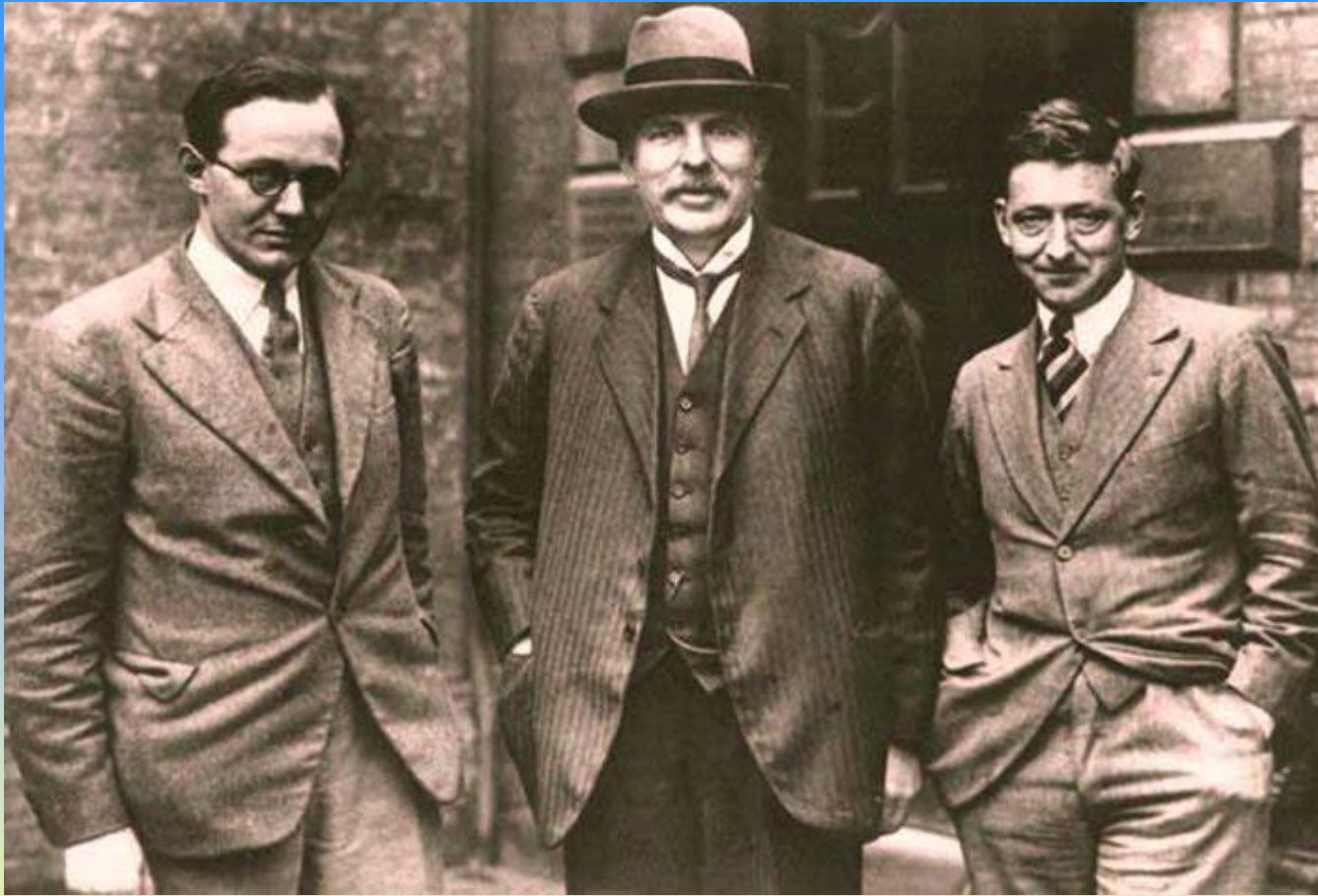
In 1962, he found the Chair of Plasma Physics at the School of Physics and Technology.



# Kharkiv 'V.N. Karazin' National University, Institute of High Technology School of Physics and Technology



**A. Walter** (1905) was a member of the Soviet team on splitting the lithium nucleus. In 1937, he found the Chair of Physics of Atomic Nucleus at Kharkiv University. In 1962 this chair was rearranged into the Chair of Experimental Nuclear Physics at the School of Physics and Technology.



April, 1932: *John Cockcroft* (1897) and *Ernest Walton* (1903) focused a proton beam on lithium and bust its nucleus. This was the idea proposed by G.Gamov (1904). The era of accelerator-based experimental nuclear physics was born. Cockcroft and Walton were awarded by the Nobel Prize in 1951.

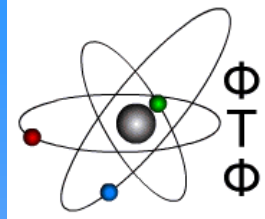
Photo: Courtesy Cavendish Laboratory, University of Cambridge



Харківський національний університет  
імені В.Н. Каразіна

# Ukraine

## Kharkiv V.N. Karazin National University, School of Physics and Technology



### matriculants

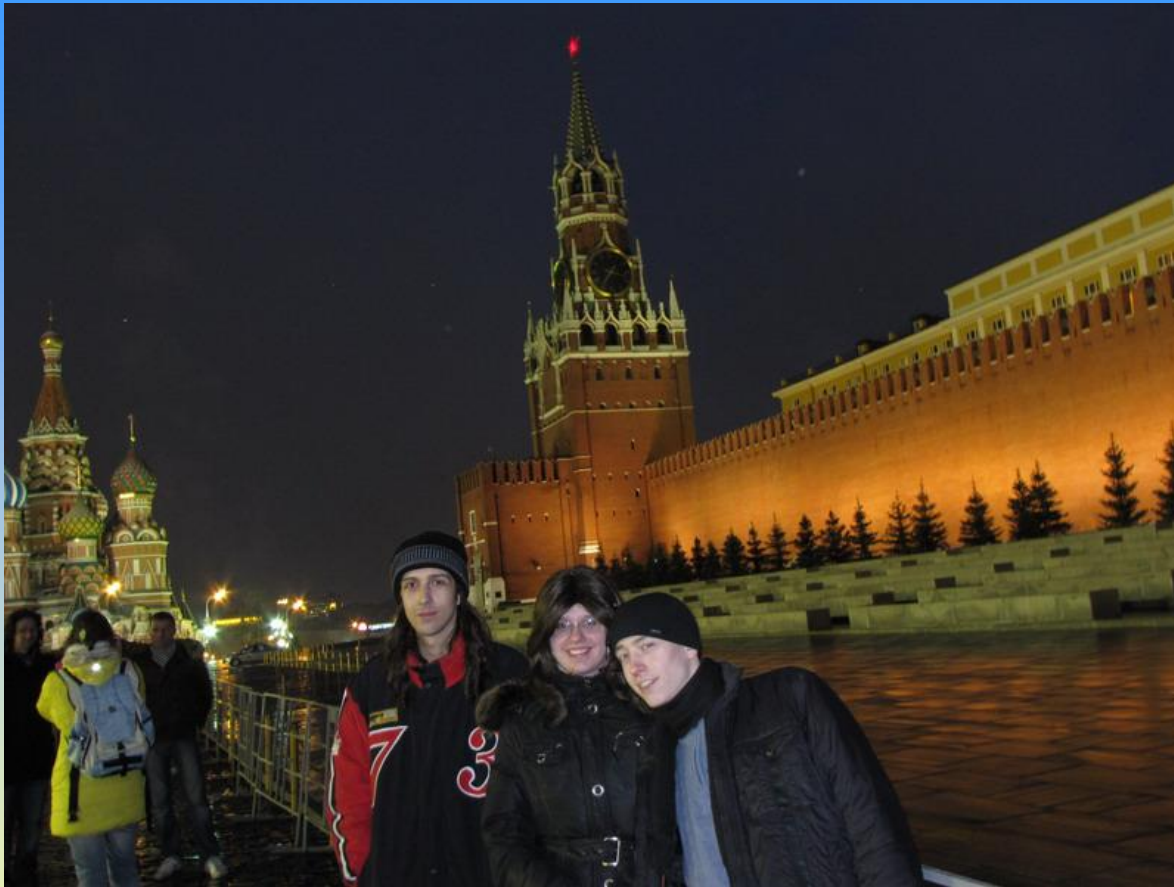
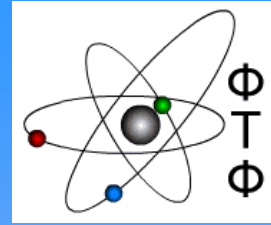


*Харківський національний університет імені В.Н. Каразіна,  
Фізико-технічний факультет. Студенти І курсу 1 вересня 2007г.*



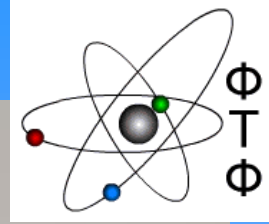
About 70 persons enter the School of Physics and Technology each year. Among them there are about 70% of those who were the winners of different secondary school competitions in Physics and the participants of International competitions of schoolchildren in Physics.

# Харківський фізтех 2010-2011

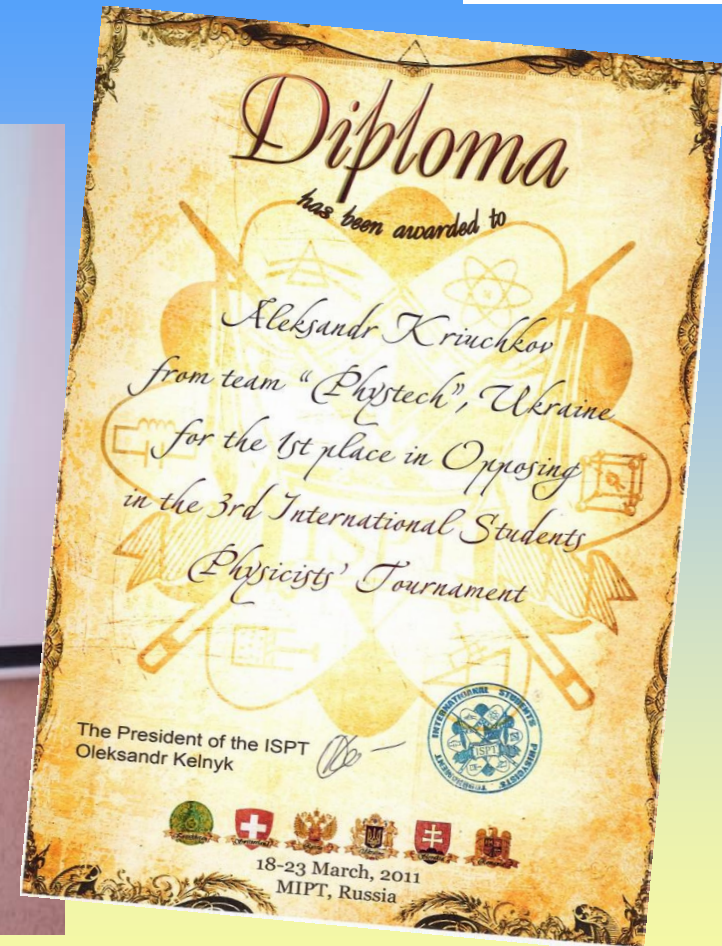
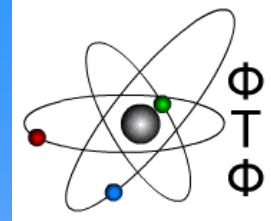


On March 18-22 2011 in Dolhoprudny city (Moscow district) in Moscow Institute of Physics and Technology 3-rd International Students Tournament of Physicists (ISPT) took place. 8 teams from Switzerland (two teams), Slovakia, Romania, Russia, Kazakhstan and Ukraine took part. In particular, a team from EPFL (Switzerland) – one of the leading Universities of the world took part. Ukraine was represented at the ISPT by two teams: our and Lviv Politekhnik, which occupied, correspondingly, first and second places at 9-th All-Ukrainian SPT.

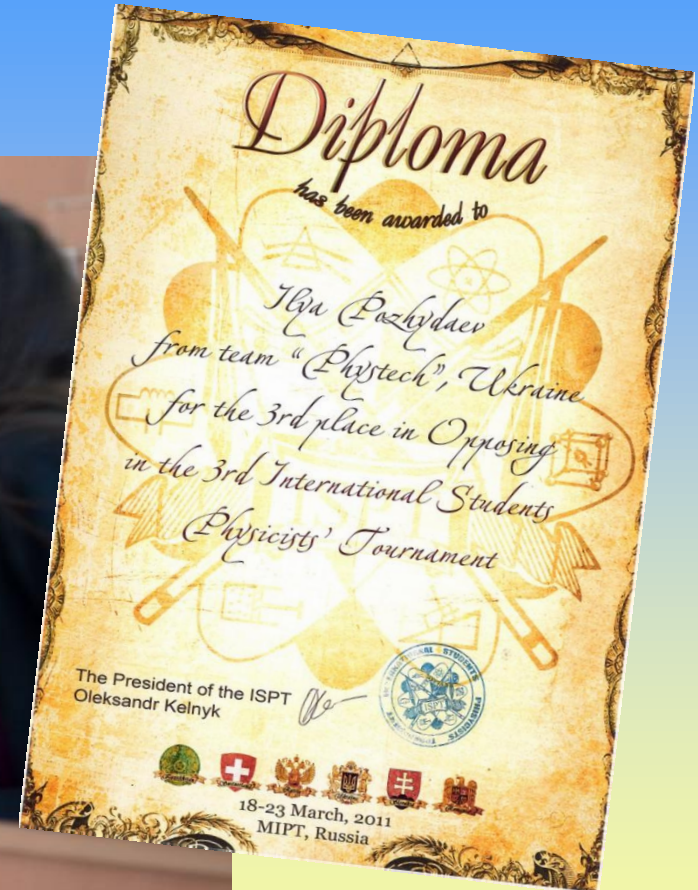
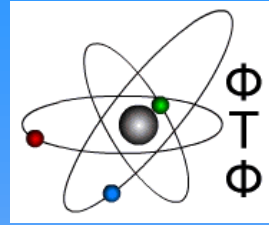




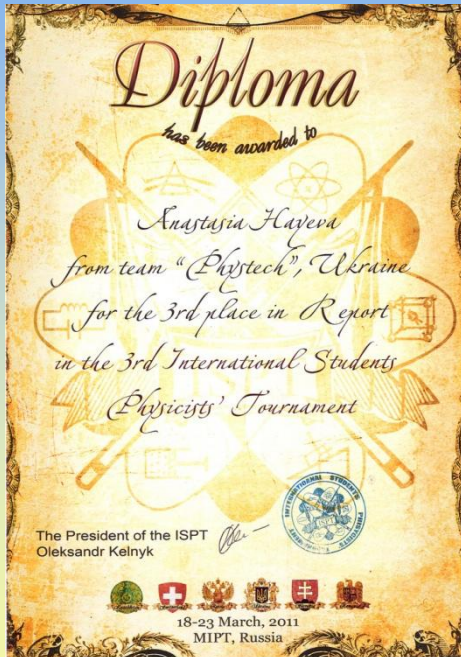
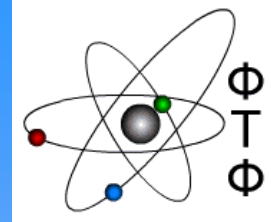
Team Phistech from KhNU had won the ISPTi: **Igor VAKulchik – captain, Anastasia Vasilchenkova, Anastasia Gaeva, Oleksandr Litvinov, Ilya Pozhidaev, Oleksandr Kryuchkov.** Manager of the team – Associated Professor **Andriy G. Gakh.**



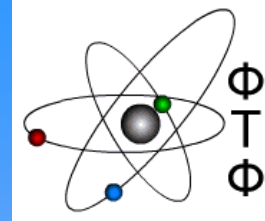
Besides, our students won several awards in personal tournament. Namely:  
**Oleksandr Kryuchkov** (4-th year) – diploma of the 1-st rank for the best opposing,



Besides, our students won several awards in personal tournament. Namely:  
**Ilya Pozhidaev** (first year) – diploma of the 3-rd rank for the best opposing,



Besides, our students won several awards in personal tournament. Namely:  
**Anastasiya Gaeva** – diploma of the 3-rd rank for the best report, and diploma of the 3-rd rank for the best review.



Our news – on the ENEN site

The screenshot shows the ENEN website interface. At the top, there is a navigation bar with links: Home, About ENEN, Education, Training, Opportunities, International cooperation, Publication, Links, and Contact us. The main content area features a news article titled "KGNU AT THE 3RD INTERNATIONAL STUDENT TOURNEY OF PHYSICISTS (ISTF) IN RUSSIA, 18-22 MARCH 2011". The article is dated Wednesday 23 March 2011. It includes a logo for SPT (State University, Moscow Institute of Physics and Technology) and a list of team members from Ukraine. The article text describes the tournament and the participation of the KGNU team.

**ENEN** European Nuclear Education Network

Home About ENEN Education Training Opportunities International cooperation Publication Links

About ENEN / News

News

**KGNU AT THE 3RD INTERNATIONAL STUDENT TOURNEY OF PHYSICISTS (ISTF) IN RUSSIA, 18-22 MARCH 2011**

**Released on Wednesday 23 March 2011**

From 18<sup>th</sup> till 22<sup>nd</sup> of March, the 3rd International Student Tournament of Physicists (ISTF) took place in Dolgoprudny, Moscow region, on the basis of MIPhT (State University, Moscow Institute of Physics and Technology). 8 teams from Switzerland (two teams), Slovakia, Romania, Russia, Kazakhstan and Ukraine participated in the tournament. In particular, the team from EPFL (Switzerland) - one of the leading universities in the world - participated in the tournament.

Ukraine at MSTF was represented by two teams: V.N.Karazin Kharkiv National University (KGNU) and Lviv Polytechnika, which occupied, respectively, first and second places at the 9<sup>th</sup> Ukrainian Student Tournament of Physicists, held on 18-22 February at the Kiev National Taras Shevchenko University. The team of the KGNU School of Physics and Technology of the University was the winner of the 3<sup>rd</sup> ISTF:

- Vakulchik Igor - team captain,
- Vasilchenkova Anastasia,
- Gaeva Anastasia,
- Litvinov Olexander,
- Pozhidaev Ilyya,
- Kryuchkov Olexander,
- The Team advisor - Associate Professor Andrey Gakh.

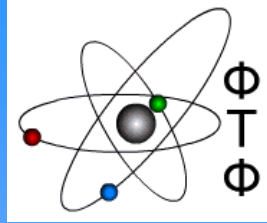
The team of Lviv Polytechnika took fifth place and was awarded the diploma of the third degree.

> V.N.Karazin Kharkiv National University (KGNU)



Ukraine

Kharkiv V.N. Karazin National University,  
School of Physics and Technology



## Chairs

After the five semesters our students make their choice of the Chair to continue education:

Chair of Theoretical Nuclear Physics,

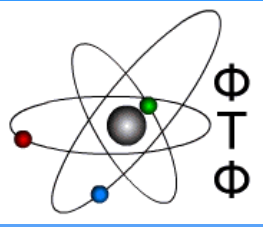
Chair of Experimental Nuclear Physics,

Chair of Materials for Reactor Constructing,

Chair of Plasma Physics,

Chair of Physical Technologies,

Chair of Biological and Medical Physics



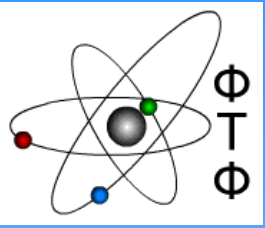
Radiation Material Science

Kharkiv 'Karazin' National University  
School of Physics and Technology

**Labs** are essential part of education

**1. Laboratory of Metallography & mechanical properties** (metallographic analysis, optical microscopy, methods of preparation of samples, quantitative metallography, hardness and strength of materials).



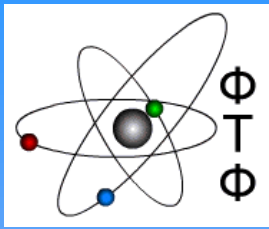


**Labs** are essential part of education

**2. Laboratory of Vacuum engineering** (vacuum pumps and aggregates, obtaining and measuring the vacuum, vacuum installations "Vacuum universal station", "Vacuum high-temperature mine furnace").







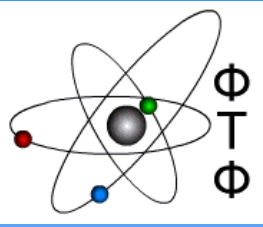
**Labs** are essential part of education

**3. Laboratory of X-ray structural analysis** (Debye method, measurement and calculation of Debye roentgenogram, X-ray diffractometry).

**4. Laboratory of Magnetic materials** (magnetic measurements, Wiegand-effect, bistable magnetic composites).

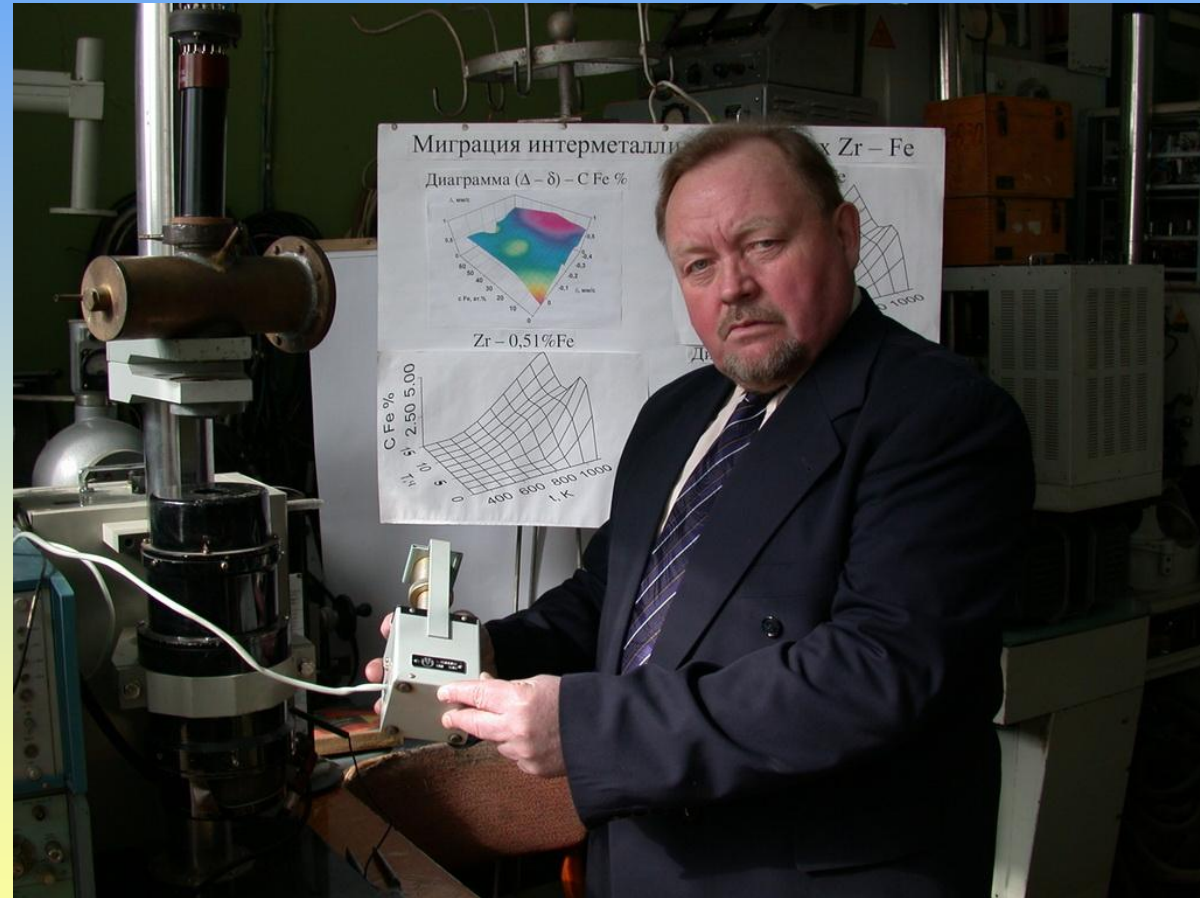
**5. Laboratory of Diffusion** (elasticity of metallic vapors, kinetics of diffusion, vapor-phase and solid-state-phase diffusion).

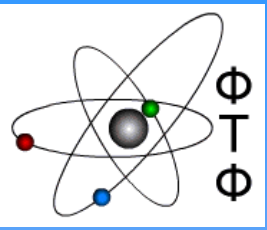
**6. Laboratory of Pure materials** (distillation, refinement and vacuum remelting).



**Labs** are essential part of education

7. Laboratory of Nuclear gamma-resonant spectroscopy (Mössbauer effect, methods of nuclear gamma-resonant analysis, nuclear gamma-resonant spectroscopy in radiating material science).





Kharkiv 'Karazin' National University  
Institute of High Technology  
School of Physics and Technology  
Radiation Material Science

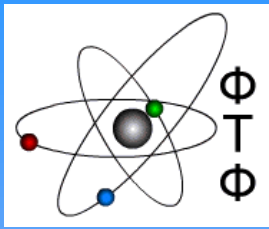
**Labs** are essential part of education

## 8. Laboratory of High-temperature materials and protective coatings



(the powder technologies, the consolidated materials, high-temperature properties of metal and composite electrical heaters, the functional protective coatings).





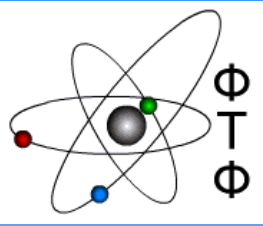
Radiation Material Science

Kharkiv 'Karazin' National University  
Institute of High Technology  
School of Physics and Technology

**Labs** are essential part of education

**9. Laboratory of Electronic microscopy and mass-spectrometry** (transmission electron microscopy and scanning electron microscopy, secondary ionic mass-spectrometry).



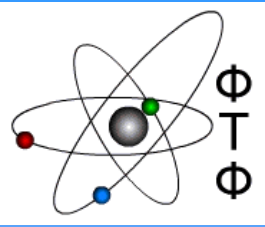


**Labs** are essential part of education

## 10. Laboratory of Composite materials

(obtaining and research of the layered structures, the routed crystallization, eutectic composites, nonmetallic composites, obtaining oxide nano-materials).





## Nuclear Physics

Kharkiv 'Karazin' National University  
Institute of High Technology  
School of Physics and Technology

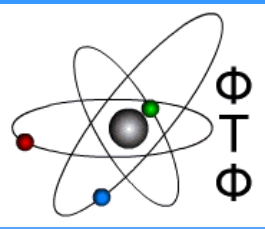
**Labs** are essential part of education

1. **Educational laboratory of Nuclear measurements** (4 credit hours) Methods of ionizing radiation registration, methods of experimental data processing

Book: *Manual on Special Practice of Nuclear Measurement*



'Nadezhda' 1 MeV, 100 kA



## Nuclear Physics

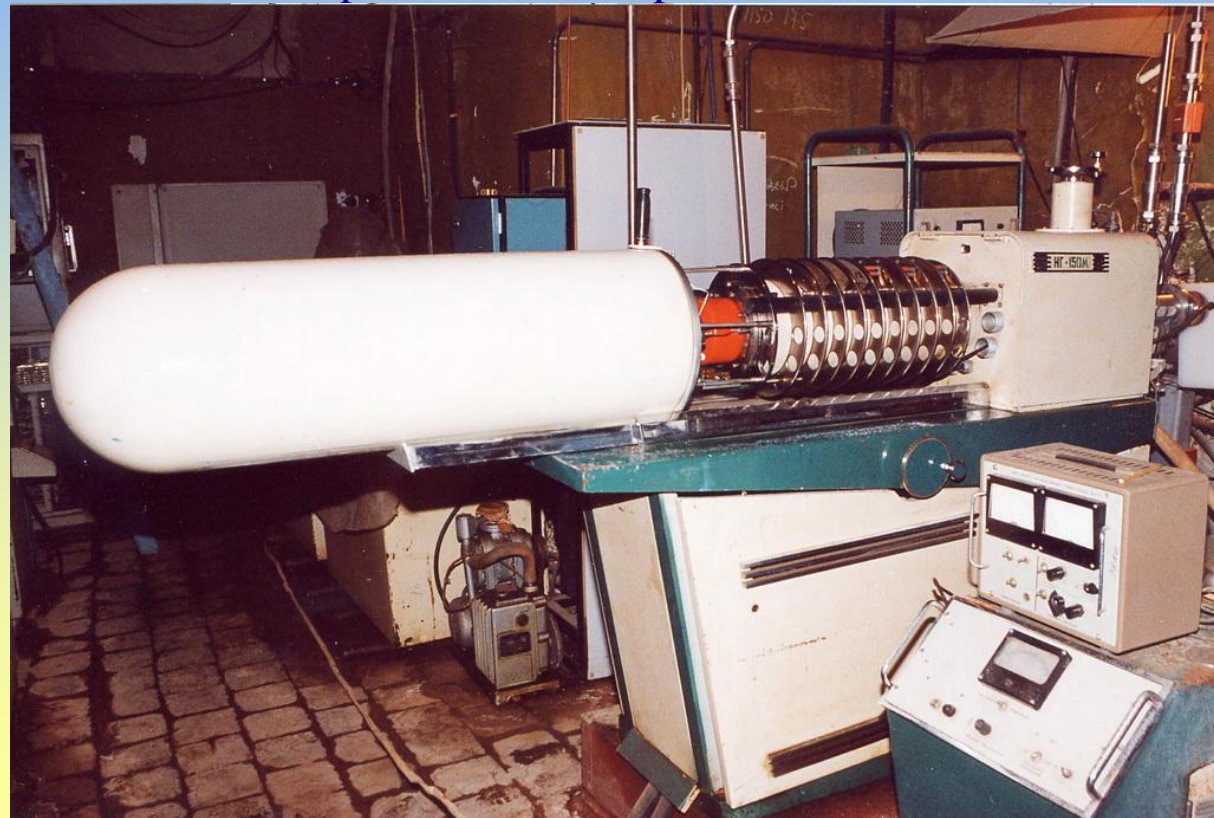
Kharkiv 'Karazin' National University  
Institute of High Technology  
School of Physics and Technology

**Labs** are essential part of education

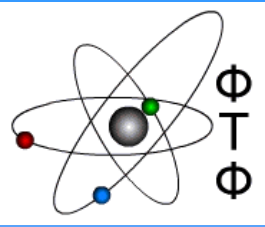
**2. Educational laboratory of Electronics engineering** and a nuclear electronics engineering (2 credit hours) Electronic methods of nuclear-physical experiment. Preliminary amplifiers of signals from detectors of radiation; spectrometric amplifiers

and schemes of appropriate signal formation; schemes of amplitude and time selection; counters of events; coding of time and amplitude information; main-modular programming systems in nuclear physics.

Book: *Manual on Nuclear Electronics*



Neutron generator 'HF-150 M', 14,1 MeV.

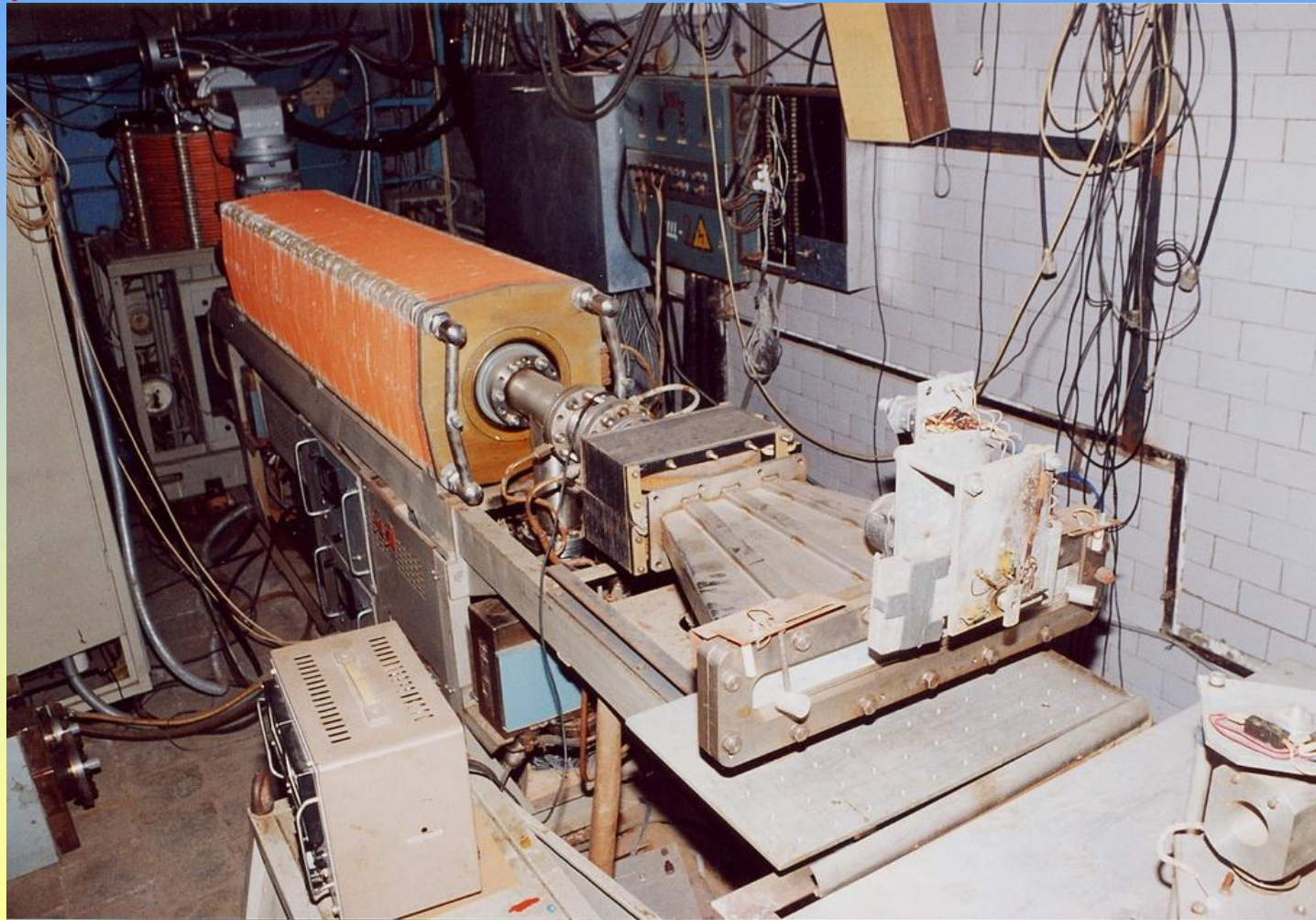


Nuclear Physics

Kharkiv 'Karazin' National University  
Institute of High Technology  
School of Physics and Technology

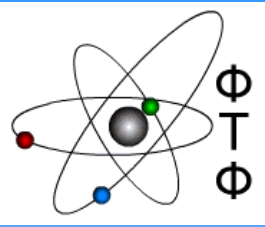
**Labs** are essential part of education

**3. Education and research laboratory of Applied nuclear physics and radioecology**  
(1 credit hour)



Electron linear accelerator 6 MeV





## Nuclear Physics

Kharkiv 'Karazin' National University  
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School of Physics and Technology

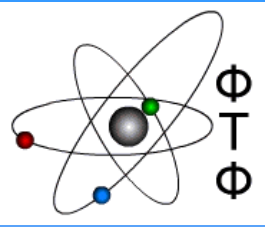
**Labs** are essential part of education

### 4. Education and research laboratory of Nuclear reactions (4 credit hours)



Electrostatic  
generator.

Proton energy up  
to 2 MeV



## Nuclear Physics

Kharkiv 'Karazin' National University  
Institute of High Technology  
School of Physics and Technology

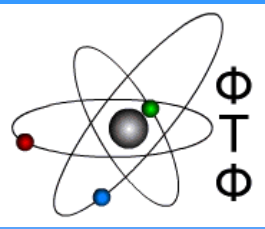
**Labs** are essential part of education

### 5. Educational laboratory of Dosimetry of ionizing radiation (1 credit hour)

Electrostatic  
generator.

Proton energy up  
to 2 MeV



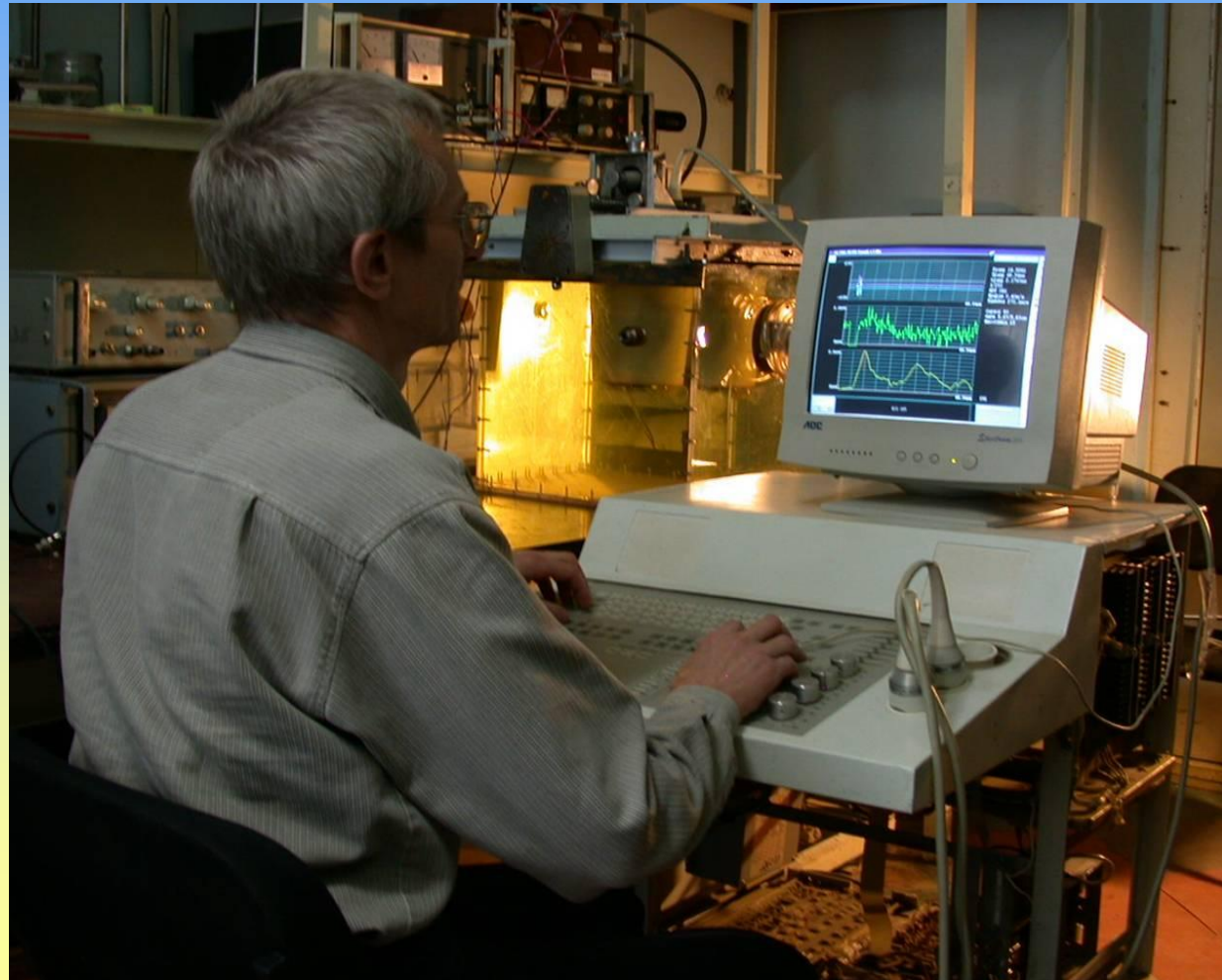


Medical Physics

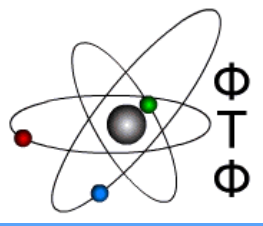
Kharkiv 'Karazin' National University  
Institute of High Technology  
School of Physics and Technology

**Labs** are essential part of education

1. Education and  
research  
laboratory of  
Methods of  
Biomedical  
Research  
(Labs 4 credit hours)



Experimental equipment for medical elastography



Medical Physics

Kharkiv 'Karazin' National University  
Institute of High Technology  
School of Physics and Technology

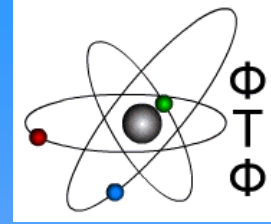
**Labs** are essential part of education



**4. Education and  
research  
laboratory of  
Medical Physics  
and Molecular  
Biology**  
(Labs 4 credit hours)



# Kharkiv V.N. Karazin National University, School of Physics and Technology Textbooks by our Professors



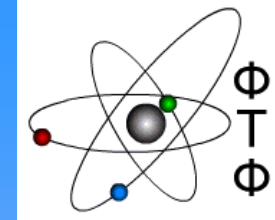
## Chair of Experimental Nuclear Physics

1. P.M. Gopych, I.I. Zalyubovskiy. Nuclear Spectroscopy. Kharkiv. Из-во ХГУ Publishing house of KhGU «Vyshcha shkola». 1980. 384 p.
2. R.B. Begzhanov, V.M. Belenkiy, I.I. Zalyubovskiy, A.V. Kuznichenko, M.G. Satarov. Structure of even-even transient atomic nuclei. Tashkent. Publishing house «FAN». 1985. 324 p.
3. I.I. Zalyubovskiy, A.I. Kalinichenko, V.T. Lazurik. Introduction to Radiation Acoustics. Kharkiv. Publishing house of KhGU «Vyshcha shkola». 1986. 168 p.
4. R.B. Begzhanov, V.M. Belenkiy, I.I. Zalyubovskiy, A.V. Kuznichenko. Transient atomic nuclei. Tashkent. Publishing house «FAN». 1988. 324 p.
5. R.B. Begzhanov, V.M. Belenkiy, I.I. Zalyubovskiy, A.V. Kuznichenko. Manual in Nuclear Physics (Nuclear Spectroscopy). Volume 1 and Volume 2. Tashkent. Publishing house «FAN». 1989. 738 p. and 828 p.
6. A.K. Valter, I.I. Zalyubovskiy. Nuclear Physics. Textbook. Edition 4-th. Publishing house of KhGU «Osnova». 1991. 480 p. (was awarded by State prize of Ukraine in the sphere of science and technology in 1993).
7. A.I. Kalinichenko, V.T. Lazurik, I.I. Zalyubovsky. Introduction to Radiation Acoustics. Harwood academic publishers. 2001. 239 p. (in English)
8. V.D. Afanasyev. Scattering of electrons and structure of a nucleus. Kharkiv. Publishing house of KhNU. 2009. 224 p.



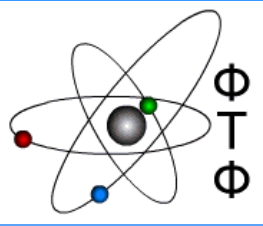
Харківський національний університет  
імені В.Н. Каразіна

# Kharkiv V.N. Karazin National University, School of Physics and Technology Textbooks by our Professors



## Chair of Materials for Reactor Building

1. Chekin V.V., Kirichenko V.G., Igrushin V.V. Analysis of the results of Moessbauer experiment (manual)// Kharkiv, KhGU, 1981. 32 p.
2. Nechiporenko E.P., Petrichenko A.P., Pavlenko Yu.B. Protection of metals from corrosion// Kharkov: Vyshcha shkola, 1985. - 112 p.
3. Chekin V.V., Kirichenko V.G., Reznichenko E.A. Hyperfine interaction and radiating damages to metals // Kharkov: Publishing house "Vyshcha shkola", 1986. 136 p.
4. Z.Z. Zyman. Fundamentals of structural crystallography (Manual)// Kharkov: KhGU, 1991. 113 p.
5. I.M. Nekljudov, N.V. Kamyshanchenko. Physical bases of durability and plasticity of metals. Part 1 (Manual). Moscow-Belgorod. 1995. 126 p.
6. I.M. Nekljudov, N.V. Kamyshanchenko. Physical bases of durability and plasticity of metals. Part 2 (Manual). Moscow-Belgorod. 1996. 158 p.
7. N.A. Azarenkov, G.P. Kovtun, S.V. Lytovchenko. Crystallization of metals and alloys (manual on physical material science)// Kharkov. KhNU. 2001. 23 p.
8. N.A. Azarenkov, S.V. Lytovchenko, I.M. Nekljudov, P.I. Stoev. Corrosion and protection of metals. Part 1. Chemical corrosion of metals (manual)// 2009. Kharkov: KhNU. 187 p.

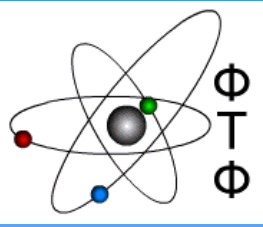


# School of Physics and Technology

Graduates of the School work at all the **Nuclear Power Plants** of Ukraine, including the Chernobyl one. They work in the following departments:

1. service of controlling the metal;
2. training centre;
3. department of nuclear safety.





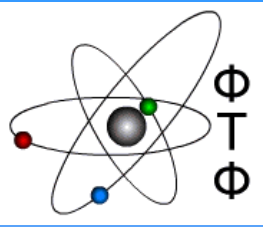
# School of Physics and Technology



**Our graduates** study and work at numerous scientific centers of **Europe**, such as:

- ITER,
- Max-Planck-Institut für Plasmaphysik, Germany,
- GSI Helmholtzzentrum für Schwerionenforschung GmbH, Germany,
- S-DALINAC at Institut für Kernphysik, Darmstadt Technische Universität, Germany,
- Helmholtz-Zentrum Berlin für Materialien und Energie, Germany,
- SIEMENS,
- Departamento de Fisica Teorica, Facultad de Fisica, Universidad de Valencia, Spain,
- INFN, Sezione di Padova and Dipartimento di Fisica “Galileo Galilei”, Università degli Studi di Padova, Italy,
- Universite Libre de Bruxelles, Belgium,
- Institut für Niedertemperatur- Plasmaphysik e. V. Greifswald, Germany.





# School of Physics and Technology

Number of Defenses in 2007-2009	Plasma Physics	Nuclear Physics
Doctors	7	3
Candidates	4	5

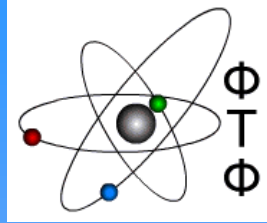


For many years Scientific Council functions at the School for defending the thesis of Candidate and Doctor of Sciences on two specialties:

- Physics of Nuclei, High Energies and Elementary Particles,
- Plasma Physics.

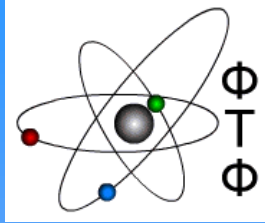


# Chair of Experimental Nuclear Physics



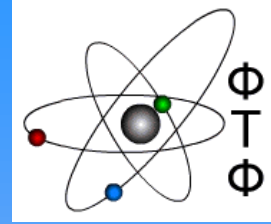
- In 1998-2008 10 graduates of the Chair defended their PhD thesis in Darmstadt Technical University and GSI:
1. Khodyachykh S.O. Experimental Study of the FEL with a Tapered Undulator and Numerical Simulations of Short Pulse Free Electron Lasers. Graduated in 1998. Defended on **09.12.2002**
  2. Gopych M.P. Einfluss von Magnetfeldern auf die Guete der supraleitenden Beschleunigungsstrukturen des S-DALINAC und Untersuchungen zur Feldemission. Graduated in 1998. Defended on **27.10.2003**
  3. Patalakha O.V. Design and Implementation of a Modular Client-Server Control System for the S-DALINAC. Graduated in 2000. Defended on **6.11.2006**
  4. Rezayeva N.V. Search for the  $p_{1/2}$ - Resonance in  ${}^7\text{He}$  with the  ${}^7\text{Li}(d,{}^2\text{He})$  Reaction and Measurement of the Deuteron Electrodesintegration under 180 deg at the S-DALINAC. Graduated in 2002. Defended on **06.11.2006**
  5. Misky Oglu M. Supersear and nodaldomains statistics in Pseudoinzevable barrier billiard. Graduated in 2002. defended on **11.08.2007**
  6. Belikov A. Neutrino-Nukleosynthese der seltenen Isotope  ${}^{138}\text{La}$  und  ${}^{180}\text{Ta}$  und Entwicklung eines Siliziumballs für exklusive Elektronenstreuexperimente am S-DALINAC. Graduated in 2003. Defended on **17.11.2007**
  7. Burda O. Nature of Mixed-Symmetry  $2^+$  States in  ${}^{94}\text{Mo}$  from High-Resolution Electron and Proton Scattering and Line Shape of the First Excited  $1/2^+$  State in  ${}^9\text{Be}$ . Graduated in 2002. Defended on **19.11.2007**
  8. Chernykh M.V. Electron Scattering on  ${}^{12}\text{C}$ , the Structure of the Hoyle State and Neutron Ball for  $(e, e'n)$  Experiments at the S-DALINAC. Graduated in 2004. Defended on **9.07.2008**
  9. Gostishchev V.M. Internal Target Effects in Ion Storage Rings with Beam Cooling. Graduated in 2004. Defended on **18.06.2008**
  10. Chornyj O.V. Measurement and Interpretation of the Bunched Beam Transfer Function in SIS-18 with Space Charge. Graduated in 2004. Defended on **27.05.2008**

# School of Physics and Technology



In 2009 three graduates more were added to the list:

11	<i>Yevetska Olena</i>	Determination of the proton polarizability with an active target and dipole strength in the $^{235}\text{U}(\gamma, \gamma')$ reaction up to 4.4MeV at the S-DALINAC	Graduated in 2003	Defended on 24.06.2009
12	<i>Pysmენტska Inna</i>	Experiment zur Messung des Ladungsradius des Protons am S-DALINAC und Untersuchung der Feinstruktur von Riesenresonanzen in $^{28}\text{Si}$ , $^{48}\text{Ca}$ und $^{166}\text{Er}$ mit Hilfe der Waveletanalyse	Graduated in 2004 .	Defended on 22.07.2009
13	<i>Aksutina Yulia</i>	Light Unbound Nuclear Systems beyond the Dripline	Graduated in 2006.	Defended on 14.08.2009



On June 24, 2011, Science Dissemination Unit (SDU) of  
**the Abdus Salam International Centre for Theoretical  
Physics (ICTP)**

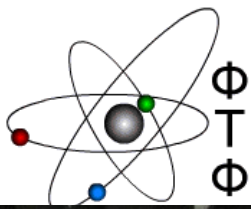
had announced the winner of its 2011 Grant programme “International e-Learning Grant using openEyA“. The Grant aims to support the automated production of on-line scientific content (via “webinars”) and e-learning and distance education (via web lectures). This grant is meant to contribute to capacity building and development by implementing academic webcasting using openEyA. The winner have agreed to publish recorded lectures on the web and distribute them freely in digital form for educational purposes. The five Winners, selected by the SDU Team, had received all USB essentials for implementing a set of the openEyA automated recording system (worth about 200 Euros in hardware each), including USB High-Definition Webcams and omni-directional microphones.



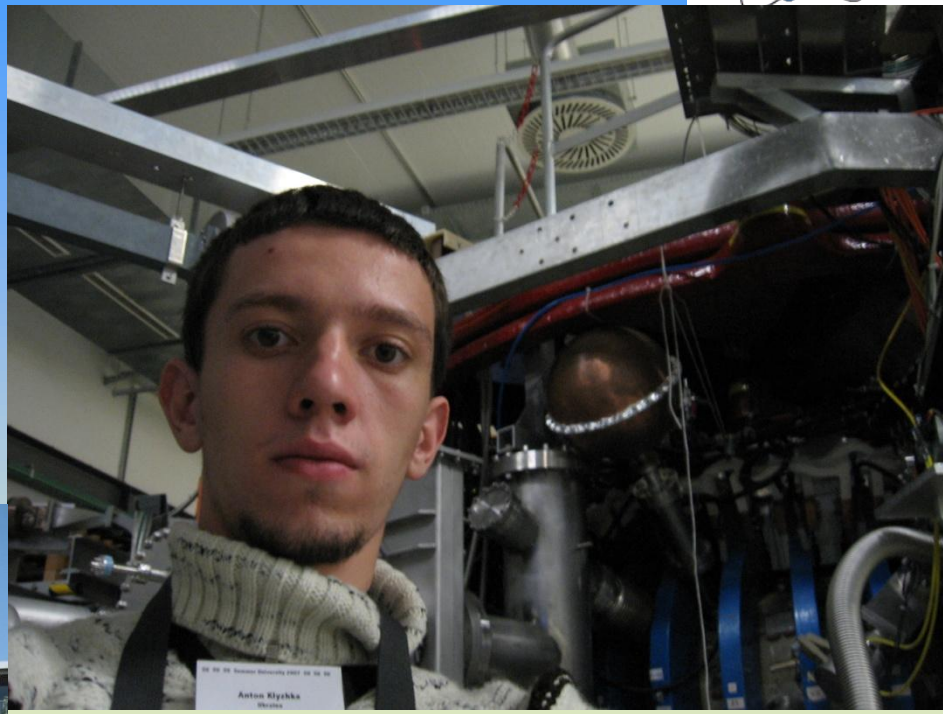


Max-Planck-Institut  
für Plasmaphysik

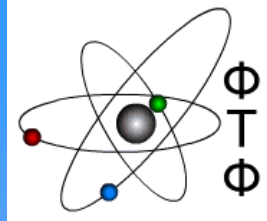
School of Physics and Technology



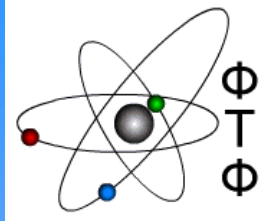
*Summer University  
for Plasma Physics  
and Controlled Fusion,  
Greifswald, Germany,  
September 2009*



Up to six students of the School visit each year *Summer University for Plasma Physics and Controlled Fusion* due to financial support of Euroatom



Trans European School on High Energy Physics - TESHEP - Poland, m. Zakopane. Participants: *O.Kozlov, M.Dalchenko, O.Macedonsky, O.Lazarenko, C.Trofymenko.*



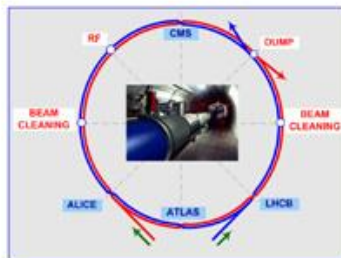
## Winter School on High Energy Physics

### Kharkov, Ukraine

- *March 2-5, 2009*
  - NSC “Kharkov Institute of Physics and Technology”
  - Kharkov National University

### Topics :

Standard Model and beyond  
Strong interaction  
B physics and CP violation  
Instrumentation for high energy physics  
Higgs boson search  
Neutrino physics



### Program and organizing committee :

M.-H.Schune, LAL/IN2P3 and PSud Univ., Orsay  
S. Barsuk, LAL/IN2P3 and PSud Univ., Orsay  
A. Stocchi, LAL/IN2P3 and PSud Univ., Orsay  
N. Shul'ga, ITP NSC KIPT, Kharkov  
A. Korchin, ITP NSC KIPT, Kharkov  
A. Dovbnya, IHENP NSC KIPT, Kharkov  
I. Zalyubovsky, KhNU, Kharkov  
V. Pugatch, KINR, Kiev



Address: NSC KIPT, 1 Akademicheskaya St., Kharkov 61108, Ukraine; Fax: +380-57-3352683; Tel.: +380-57-3356462;  
E-mail: shulga@kipt.kharkov.ua, korchin@kipt.kharkov.ua, olomin@kipt.kharkov.ua

WEB site: <http://www.kipt.kharkov.ua/conferences/itp/WSHEP2009>

National Academy of Sciences of Ukraine, National Science Center “Kharkov Institute of Physics and Technology”, ‘Akhiezer’ Institute for Theoretical Physics of NSC KIPT, Kharkiv ‘Karazin’ National University had arranged Winter School on High Energy Physics on March 2—5, 2009 (Kharkov, Ukraine)

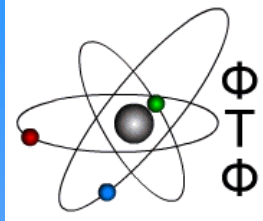


**IAEA**

International Atomic Energy Agency

Atoms For Peace

**School of Physics and Technology**

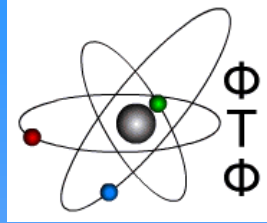


**Technical Cooperation  
Project RER/8/010  
“Quality Control  
Methods and  
Procedures for  
Radiation Technology”  
IAEA in cooperation  
with the Government  
of Ukraine through the  
Kharkiv ‘Karazin’  
National University**

***“Regional Training Course on the Use of Simulation  
Methods for Quality Control of Gamma and X-Ray  
Processing”***

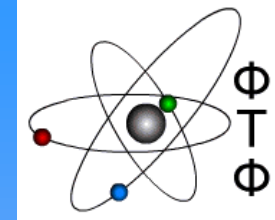
**Kharkiv, Ukraine, 7-11 July, 2008**





On April 5-9 2011 the  
School hosted Annular  
European conference  
**EuroPhysicsFun**

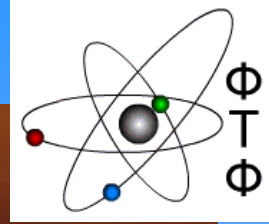




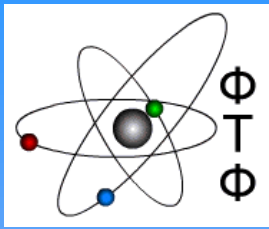
The main event of the conference for citizens of Kharkiv was “**Show of Physical demonstrations**”.

In the “Show” 31 representatives from 10 European countries took part: Poland, Switzerland, France, Denmark, Holland, Norway, Slovakia, Portugal, Finland.





On April 5-9 2011 the School hosted Annular European conference  
**EuroPhysicsFun**



# Kharkiv 'Karazin' National University School of Physics and Technology

## SUMMARY

- nuclear physics, reactor materials science and medical radiation physics are studied at the School,
- we still keep the traditions of qualitative education in these spheres,
- our scientists and professors participate in international projects,
- we invite the youth from non-European countries (high quality for less cost) to study at the University with the following employment at home (on NPP, ITER, ???),
- ...

# TO BE CONTINUED

