

## Department of General and Theoretical Physics

### Faculty of Physics and Mathematics

Why do you need to know physics? There are many interesting things in the world. Physics - the science of nature - living and inanimate. Physics is looking for and finding answers to such complex questions as "where did the universe arise," "what is space and time," "where did chemical elements appear," "how life is born," "how did you appear?". Yes, you, since the birth of life is a chemical reaction, and hence the physical process, which studies physics. All advances in computer technology are also based on the laws of physics. Knowing all this, relying on already open laws, physicists must also answer the question "what will the world be" and "what will happen to us in the future."

By joining the Department of Physics and Mathematics you will be able to understand deeply what laws and principles are at the basis of any physical process or phenomenon, as well as to simulate, calculate and discover the patterns in such phenomena as, for example, the sound of musical instruments, the principles of the functioning of an electronic device, What you are using now, a laser or a particle accelerator, a rocket flight in outer space, a behavior of an elementary particle in a quantum dot, and much more.

Areas of research of the Department of General and Theoretical Physics

Physics is immense. Therefore, our department deals only with some, but important sections:

Physics of fractal and complex systems. Fractals have already found their application in the physics of disordered systems, information technology, and biological systems. By the way, the starry sky and various geometric patterns on embroidery are also fractals.

Magnetic systems, the importance of which can be understood, at least from the fact that magnetizing systems are almost the main element of the miracle of modern technology - the large hadron collider.

Magneto-optical phenomena in magnetic orderly systems under conditions of magneto-mechanical resonance, magneto-optical modulators of light on magneto-optical crystals.

Physics of phenomena in semiconductors, which underlies the work of electronic devices and devices, in particular sensors, biosensors, devices using modern nanotechnologies.

After completing the Faculty of Physics and Mathematics and knowing the physical laws in addition to the specialty, you will be able to work in any other field as you study the physics, you learn to analyze, find the true causes of the phenomena and predict the consequences.

Conference "History of the development of science, technology and education"

Our faculty together with the department of history of science and technology of the Center G.M. Gobrova conducts a scientific and practical student conference "History of the development of science, technology and education" every year, in which young scientists, students and young people take part. Leading scientists, who make scientific reports, are invited to the plenary session. Traditionally, participation in the conferences of teachers and students of senior classes of profile lyceums of Kyiv - Polytechnic Lyceum at NTUU "KPI" and Natural and Scientific Lyceum № 145 in Kyiv was traditionally involved. Participation of young people in the conference is extremely important for developing her creative abilities, forming a scientific outlook, sharing knowledge and acquiring skills for conducting

independent research work. It often happens that, having become interested in the topic during the preparation of the report at the conference, students also choose a close topic of the thesis. Young scientists, post-graduate students, students and senior students from educational and scientific institutions of Ukraine, the USA, Turkey, Poland take part in the conference.

Join us, do not regret it!