14.03.02 Nuclear Physics and Engineering

Particle Physics and Cosmology

Program objectives:

• possess knowledge in the foundations of nuclear physics, particle physics, and cosmology;

• conduct research on improvement of the experimental techniques in the field of nuclear and particle physics;

• prepare and carry out experiments; analyze and interpret their results;

• solve fundamental problems of astrophysics, cosmology and particle physics, connected with the description of the early Universe, dark matter, dark energy, etc.

Program curriculum

more than 60 courses

• fundamental training in physics and mathematics;

• basic theoretical and practical grounding in nuclear and particle physics.

Training directions:

accelerator experiments (e.g., at the Large Hadron Collider) – experimental techniques, particle detectors, electronics, and methods of measurements, as well as methods for computer-aided processing and analysis of experimental data

cosmology – fundamentals of the relativistic quantum mechanics, astrophysics and cosmology

Alumni professional activity

• research work in basic particle physics and cosmology

• preparation and carrying out particle physics experiments (creation and use of particle and radiation detectors)

• experimental data analysis

• theoretical predictions and interpretation of experiments in high-energy physics (experiments at accelerators and in astrophysics)