High-power lasers and laser fusion

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)

Degree or qualification is awarded: **Master degree**

Language of study: **Russian**
Mode of study: **full-time**
Duration: **2 years**
Availability of free education: **yes**
Price: **196 820 rubles per semester**

Programme curator: **Kuznetsov Andrey**
Tel.: **Contact name: Olga N. Petukhova, Phone number. +74957885699, ext. 8045.**
E-mail: ONPetukhova@mephi.ru

Objectives: Prepare masters who are able to work successfully in the sphere of activities related to laser physics, use of high-power lasers in industrial complexes and systems, nuclear physics, laser fusion and interaction of laser radiation with matter, possessing universal and subject-specialized competences, contributes to their social mobility and stability in the labor market.

Graduate Department: “Laser fusion physics” (№69).

Fields of professional activity: research, development and technology, aimed at the creation and application of lasers and laser systems in fusion problems, interaction of radiation with matter, the application for technological purposes, diagnostics of various media, research, development and technology, aimed at the creation and use of installations and systems in the field laser plasma physics, condensed matter.

Objects of professional activity: lasers, laser systems, laser technology, physical instruments and installations for plasma diagnostics, substances in gaseous and condensed state, the mathematical model for theoretical, experimental and applied research of phenomena and laws of physics of lasers, plasma, gas and condensed matter , propagation and interaction of radiation with matter. The training program includes the acquisition of the graduates of a wide spectrum of competencies that make it possible to conduct research and solve a variety of applications in the field of laser physics, plasma physics, in the field of condensed matter, nanotechnology, physics division of isotope and molecular mixtures physics of fast processes in the field of medical physics and biophysics, nuclear facilities, nuclear and radiation safety and control systems and automated control of nuclear physics installations and other.

Features of training plan: The main feature of the educational process of preparation is the fundamental physical and mathematical and engineering preparation, which allows you to master the main basic and special disciplines: "Interaction of laser radiation with matter," "Laser fusion Physics", "Fundamentals of nonlinear optics", "Ultrashort pulse lasers" and et al. Part of the curriculum is also implemented in English. We use an individual approach in teaching students, taking into account the variability of their preparation for admission to master's and specifics of employment of graduates.

The research work of students is carried out in close connection with the work carried out at the department and research organizations State Corporation "Rosatom", Russian Academy of Sciences, and others.

Graduates of the department are trained to address the wide range of problems in the first place, such as

- development and construction of laser technology and diagnostic systems, high-power laser systems;
- problem of laser fusion physics;
- modeling of physical processes of interaction of laser radiation with matter.

The list of enterprises for practical training and employment of graduates: Enterprise State Corporation "Rosatom"; RAS institutes.

Specializations within this programme