Quantum metrology

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: **Petr V. Borisyuk**
Tel.: **Contact name: Olga N. Petukhova, Phone number. +74957885699, ext. 8045.**
E-mail: ONPetukhova@mephi.ru

The goal of the program is to train metrologists with fundamental physical and technical knowledge in the field of ensuring the uniformity of measurements required to solve modern metrology tasks in nuclear industry.

Professional activity of graduates includes research, development, expertise, production and technological, organizational and management activities in the field of metrology to ensure the nuclear weapons complex, nuclear facilities, metrology in the field of nuclear energy complex of State Corporation "Rosatom". The department provides training and professional development of specialists of metrology services of State Corporation "Rosatom".

The main feature of the educational process of preparation is the fundamental physical and mathematical and engineering training, which allows you to master the main basic and special disciplines. The program provides advanced training in the field of condensed matter physics, physics of nanostructures, quantum physics, the design of devices and systems for metrological maintenance of physical measurements, develops skills of independent research work at high professional level with in-depth self-assessment of performed works. The emphasis in the educational process is made on the practical application of acquired knowledge. The curriculum includes the traditional for the Department amount of studies in fundamental metrology institutes, such as "VNIIFTRI (National Research Institute of Physicotechnical and Radio Engineering Measurements)" and "VNIIOFI (All-Russian Scientific Research Institute of Optical and Physical Measurements)" in the form of lectures, workshops, laboratory works, specialized practical works, research and development works, pre-graduation practice and diploma projects. Part of the curriculum is also implemented in English.

Module 1 “General sciences”
Module 2 “Professional”

The base of industrial and/or scientific practice and employment:

- MEPhI;
- The Kurchatov Institute; Rosatom enterprises;
- VNIIFTRI (National Research Institute of Physicotechnical and Radio Engineering Measurements);
- VNIIOFI (All-Russian Scientific Research Institute of Optical and Physical Measurements);
- P.N. Lebedev Physical Institute of the Russian Academy of Sciences; Institutes of Russian academy of sciences; etc.

Specializations within this programme

Nuclear physics and technologies

Objects of the professional activity:

Atomic nucleus, elementary particles and plasma condensed state of matter, lasers and applications, nuclear reactors, nuclear materials and systems to ensure their security, particle accelerators, advanced electronic circuit design, electronic systems nuclear and physical installations, automated control system for nuclear physics facilities, the development and application technology devices and systems for the analysis of substances, radiation effects of ionizing radiation on human and environment, radiation technology in medicine, mathematical models for the theoretical, and experimental studies phenomena and laws in the field of nuclear physics, particle, plasma, condensed matter, nuclear reactors, distribution and interaction of radiation with objects animate and inanimate nature, sky-ecological monitoring of the environment, security of nuclear materials, facilities and installations of the nuclear industry and energy.