# Theoretical physics

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)

Degree or qualification is awarded: **Researcher. Lecturer-researcher**

Language of study: **Russian, English**
Mode of study: **full-time**
Duration: **4 years**
Availability of free education: **yes**
Price: **325 000 rubles per year**

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**Basic department:** Theoretical nuclear physics (№ 32)

**Goals of the Program**

- Research in theoretical and mathematical physics;
- The development of new methods for the study of physical phenomena and processes;
- Mathematical modelling of physical phenomena and processes;
- Planning of experimental studies and analysis of their results.

**Competitive advantages of the program**

Training of doctorates follows the priority issues of science, technology and technics development in Russian Federation.
The following is provided:

- Special educational programs, individual training plans, academic university mobility;
- Involvement of the leading specialists in the area to the educational process, practical work of the students in scientific groups of the leading scientific research organizations;
- The competitive selection of students for the organizations of “Rosatom”, Russian Federal Nuclear Centers, JINR, institutions of the Russian Academy of Science, NRC “Kurchatov Institute” and others.

The program promotes the development of capability for individual research work at high professional level with a self-evaluation of the performed work. The education process is focused on the practical application of the knowledge acquired in the process of study.

**Characteristics of the scope and objects of professional activity of future graduates**

- Theoretical study and mathematical modelling of physical processes and phenomena in nature and experiment;
- Development of new research methods in various areas of theoretical physics, including the quantum and classical fields theory, plasma physics, condensed matter physics, nuclear physics and elementary particles physics, nonlinear and stochastic dynamics, astrophysics, cosmology etc.;
- Participation in preparation and planning of physical experiments;
- Development and modelling of diagnostic tools and devices.

**Brief description of the curriculum**

A key role in the education process is attributed to a scientific research, in which doctorates acquire skills in analysis of scientific and technical information on the subject; development and examination of physical models, numerical modelling of physical processes and analysis of experimental results.

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

Doctorates pass practice in research, perform research activity and prepare the final certification works in NRNU MEPhI, NRC “Kurchatov Insititute”, Russian Federal Nuclear Centers RFNC-VNIIEF and RFNC–VNIITF, FSBI “Institute for Theoretical and Experimental Physics ”, VNIIA named by N.L. Dukhov and other enterprises of “ROSATOM” corporation, institutes of the Russian Academy of Sciences, including Lebedev Physical Institute, Institute for Crystallography, Space Research Institute, Institute for Spectroscopy and others.

## Specializations within this programme