

# Theoretical Physics

Far Eastern Federal University

Degree or qualification is awarded: **Candidate of Sciences**

Language of study: **Russian**

Mode of study: **full-time, part-time**

Duration: **4 years**

Availability of free education: **yes**

Price: **320 000 rub a year (full-time) / 160 000 rub a year (part-time)**

Programme webpage at the university website:

<https://www.dvfu.ru/upload/medialibrary/a06/%D0%9F%D0%B5%D1%80%D0%B5%D1%87%D0%B5%D0%BD%D1%8C%D0%BF%D1%80%D0%BE%D0%B3%D1%80%D0%B0%D0%BC%D0%BC%20%D0%B0%D1%81%D0%BF%D0%B8%D1%80%D0%B0%D0%BD%D1%82%D1%83%D1%80%D1%8B,%20%D0%BE%D0%B1%D1%8A%D1%8F%D0%B2%D0%BB%D0%B5%D0%BD%D0%BD%D1%8B%D1%85%20%D0%B2%20%D0%BD%D0%B0%D0%B1%D0%BE%D1%80%202020%20%D0%B3%D0%BE%D0%B4%D0%B0.pdf>

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The purpose of the educational program is to prepare a graduate student for the independent implementation of research activities in the field of theoretical physics, acquire the level of competencies necessary for carrying out professional activities and to defend a scientific qualification work (dissertation) for the degree of candidate of sciences.

Tasks.

1. To develop the ability to critically analyze and evaluate modern scientific achievements, to generate new ideas in solving research and practical problems.
2. To train graduate students in the methods of research activities, the use of mathematical methods and computer modeling methods necessary to describe physical processes, ways of presenting the results of scientific activities in oral and written form

The area of professional activity of graduates who have mastered the postgraduate program includes solving problems requiring the application of fundamental knowledge in the field of physics and astronomy, the field of theoretical physics, computational physics, physics of magnetic phenomena.

The objects of professional activity of graduates who have mastered the postgraduate program are: physical systems of various scales and levels of organization, processes of their functioning, physical, biophysical and physicochemical technologies. Particular attention in the training program is paid to the study of nanostructured magnetic systems, spin and macrospin glasses, the development of new high-performance multithreaded and parallel algorithms, numerical simulation schemes, as well as the study of complex nonlinear systems using the methods of quantum field theory on a lattice.

The types of professional activities for which the graduates who have mastered the postgraduate program are trained: research activities in the field of theoretical physics; teaching activities in the field of physics. The postgraduate program is aimed at mastering all types of professional activities for which the graduate is preparing.

The following disciplines are included in the program for the formation of such competencies as the defense industry and the PC: theoretical physics, quantum field theory, parallel programming, quantum chromodynamics, linear and nonlinear waves, the theory of phase transitions and teaching practice.

Graduates of postgraduate studies will be in demand in research institutes of the Russian Academy of Sciences and universities of the country, such as the Institute of Oceanology of the Far Eastern Branch of the Russian Academy of Sciences, the Institute of Chemistry of the Far Eastern Branch of the Russian Academy of Sciences, the Institute of

Automation and Control Processes of the Far Eastern Branch of the Russian Academy of Sciences, the G.I. Nevelskoy, Vladivostok State University of Economics and Service, Far Eastern Technical Fisheries University, Pacific State University of Khabarovsk.

Period of study: full time – 4 years, part-time – 5 years

### **Specializations within this programme**