

# Photonics, Instrumentation, Optical, Biotechnical Systems and Technologies

National Research ITMO University

Degree or qualification is awarded: **Ph.D in Photonics, Instrument-Making, Optical, Biotechnical Systems and Technologies**

Language of study: **Russian**

Mode of study: **full-time**

Duration: **4 years**

Availability of free education: **yes**

Price: **299 000 RUB per year**

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Upon completion of their Ph.D. program, graduates will be able to work in the following fields: study of the physical phenomena and laws in the field of photonics, laser physics, wave optics, integrated and fiber optics, nonlinear optics, optoelectronics, optical materials science, biomedical optics, plasmonics; engineering, focused on the design, manufacture and application of devices and systems for receiving, recording and processing of information of technical and biological objects; expertise and administrative activities related to photonic devices.

The graduates will have an understanding of photonic devices and technologies, electrooptical devices, optical information and electrooptical systems; telecommunications and information processing technology of technical and biological objects; devices, systems and electronic components for photonics and instrumentation; devices and systems of biomedical optics, medical-biological and ecological purposes; expert assessments and opinions on issues in the field of photonics, instrumentation, optical, biotechnical and biomedical systems and technologies.

The types of professional activity are: research activities in the field of laser physics, wave optics, integrated and fiber optics, nonlinear optics, optoelectronics, plasmonics, biomedicine, bioengineering, the development of optical communication systems; creation of new materials (metamaterials) for photonics, optical, optoelectronic, biotechnical and biomedical applications; work on advisory councils and commissions.

## Specializations within this programme

**Instruments and methods of measurement (according to the types of measurement)**

**Navigational devices**

**Optical and optoelectronic devices and systems**

**Instruments and methods of environment, substance, material and product monitoring**

**Instrumentation technology**