

03.04.02 Physics

Nanotheranostics

Program objective

Nanotheranostics is an intensively developing direction of high-tech medical practice, connected with application of biocompatible and biodegradable nanomaterials and biotechnologies in early diagnostics. Nanotheranostics also addresses treatment of socially significant diseases. The program is developed to educate specialists in nanotheranostics that are able to develop new technologies and apply them in practical medicine.

Research and professional activities

- nanotechnology for biomedical applications
- nuclear medicine
- studies of the propagation and interaction of electromagnetic and ionizing radiation with tissues and organs
- research, development and technology to obtain and evaluate medical diagnostic images
- experimental investigation and implementation of instruments and methods for medicine.

Curriculum features

- fundamental training in physics and mathematics
- special courses such as physical methods in medical diagnostics, nanoparticles for biomedicine, optics of nanosystems, etc.
- research practical training to develop skills on modern equipment and machinery, skills of practical use of physical methods to solve practical problems of radiology and radiotherapy, radionuclide diagnostics in medicine.

Practical training and future professional opportunities

- Rosatom State Corporation companies and research institutions
- National Research Centre “Kurchatov Institute”
- Burdenko National Research and Practical Center for Neurosurgery of the Ministry of Healthcare of the Russian Federation
- Blokhin National Medical Research Center of Oncology of the Ministry of Health of the Russian Federation
- Research Center of Radiology etc.