

# Physics of Kinetic Phenomena

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: **137 500 rubles per semester**

Programme curator: **Vladimir D. Borman**

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## The objectives:

- to prepare graduates to research and industrial activities in the field of physics of kinetics phenomena;
- at the stage of study, to provide novel natural sciences and professional knowledge, specialized competencies;
- and to give graduate skills in the professional field and prepare for admission to the graduate school.

## Specialty areas:

- numerical modeling of heat transfer in a multi-stage selective separation units;
- design of molecular-selective devices;
- design, development, and characterization of advanced nano-structured materials for the separation, analysis of materials with mass spectrometric and optical methods;
- development of working drawings, installation, commissioning and maintenance of experimental facilities;
- and metrological support of measurements.

**The objects of professional activity:** technologies of the nuclear fuel cycle and isotope separation technology and simulation of processes occurring in them; membrane modules; numerical simulation of heat transfer in a multi-stage selective separation units, materials and technology of separation systems; and new composite materials.

## Brief description of the curriculum.

The curriculum retains the traditional fundamental knowledge principles of engineers training and includes physical, mathematical and engineering disciplines. It also includes a lot of special disciplines, for example, "Physical kinetics of atomic processes in nanostructures", "Numerical methods in fluid dynamics", "Methods of studying the structure of porous media", "Surface Physics", "Laser and plasma isotope separation methods". Part of the curriculum is also implemented in English.

## Industrial and scientific practice is performed in the leading scientific and industrial centers of Russia:

- National Research Nuclear University MEPhI;
- National Research Centre "Kurchatov Institute;"
- Russian Federal Nuclear Center – Zababakhin All-Russia Research Institute of Technical Physics
- Research Institute of Technical Physics and Automation Research Institute;
- Bochvar High-technology Research Institute of Inorganic Materials»;
- Dukhov All-Russia Research Institute of Automatics;
- Space Research Institute of the Russian Academy of Sciences.

**Head of the program:** Vladimir D. Borman, Dr. Sci., Professor of the base department.

## Specializations within this programme