

Physics of Extreme States of Matter

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)

Degree or qualification is awarded: **Bachelor's degree**

Language of study: **Russian, English**

Mode of study: **full-time**

Duration: **4 years**

Availability of free education: **yes**

Price: **316 290 rubles per semester**

Programme curator: **Boris Y. Sharkov**

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Basic department: Physics of Extreme States of Matter (No. 60)

Head of the program: Boris Sharkov, Corresponding Member of the Russian Academy of Sciences, Professor, Head of Department, Scientific director of the European Research Center for Antiproton and Ion (FAIR)

The program is aimed at training specialists in particle beam physics and radiation physics and chemistry, equipping them with expertise, skills and competences they need for work and further study for a master's degree.

Graduates who have completed the bachelor's program "Physics of Extreme States of Matter" can work in research, design, production, technologies and management at the National Research Centre "Kurchatov Institute", the State Scientific Center of the Russian Federation - Institute for Theoretical and Experimental Physics, National Research Nuclear University "MEPhI", research centres of the Russian Academy of Sciences, Rosatom enterprises and innovative and high-tech business companies.

The subjects of their work include research into atomic nuclei, plasma, condensed state of matter, material science, nuclear reactors, charged particle accelerators, development of nuclear technologies; in particular, the modern problems of condensed matter physics; interaction of radiation with matter, diagnostics and application of heavy charged particle beams, radiation and nuclear technologies, analytical studies of interaction of fluxes of high-energy particles with matter.

The curriculum: the curriculum includes training of students in basic natural sciences, physical and mathematical sciences and related subjects, a set of interrelated courses in charged particle beams and physics of interaction of particles with matter, computer simulations and modelling, analytical methods of beam monitoring, physics of the interaction of the charged particles with matter, and in accelerators.

The students accomplished education along this program are ready to work in the National Research Centre "Kurchatov Institute", the State Scientific Center of the Russian Federation - Institute for Theoretical and Experimental Physics, research centers of the Russian Academy of Sciences, Rosatom enterprises and innovative and high-tech business companies.

Specializations within this programme

Professional activity of graduates includes research into atomic nuclei, plasma, condensed state of matter, material science, nuclear reactors, charged particle accelerators, development of nuclear technologies; in particular, the modern problems of condensed matter physics; interaction of radiation with matter, diagnostics and application of heavy charged particle beams, radiation and nuclear technologies, analytical studies of interaction of fluxes of high-energy particles with matter.