MULTIPARTICLE EFFECTS IN THE DESCRIPTION OF EQUILIBRIUM AND NON-EQUILIBRIUM NUCLEAR MATTER

Moscow Institute of Physics and Technology (National Research University)

Degree or qualification is awarded: **PhD (Candidate of Science)**

Language of study: **English**
Mode of study: **full-time**
Duration: **4 years**
Availability of free education: **yes**
Price: **375 000 RUB**

Programme curator: **Denis Ustyuzhaninov**
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Entry requirements:

- Master's degree / equivalent in a related field
- B2 level of English
- Good track record of publications related to the topic of the intended research
- Strong research proposal 1,500 - 3,500 words

Research supervisor:
Dmitry Voskresensky
PhD, DSc

Supervisor's research interests:
Theoretical description of in-medium effects in equilibrium and non-equilibrium nuclear matter prepared in nucleus-nucleus collisions, existing in compact stars (neutron and hybrid stars), being forming in supernovas. Description of various phase transformations in these systems.

Research highlights:
Cooperation with foreign scientists.

Supervisor's specific requirements:

- Standard course of mathematics for Universities, Course of Theoretical Physics: Chapters: Mechanics, Classical field theory, Statistical physics (including basics of condensed matter physics), Quantum mechanics, Quantum field theory, Physical kinetics.

Main publications:

- A.B. Migdal, E.E. Saperstein, M.A. Troitsky and D.N. Voskresensky, Pion degrees of freedom in nuclear matter, Phys. Rep. 192 (1990) No 4,5,6, 179-437.
- Yu. B. Ivanov, J. Knoll and D.N. Voskresensky, Resonance transport and kinetic entropy, Nucl. Phys. A672 (2000) 313-356.
- D.N. Voskresensky, M. Yasuhira, T. Tatsumi, Charge screening at first order phase transitions and hadron-quark mixed phase, Nucl. Phys. A723 (2003) 291-339.
- E.E. Kolomeitsev, K.A. Maslov an D.N. Voskresensky, Delta isobars in relativistic mean-field models with sigma-scaled hadron masses and couplings, Nucl. Phys. A 961, 106 (2017).

Specializations within this programme