


University	National University of Science and Technology MISiS
English proficiency	B1
Postgraduate program	Physics Specialization: Physics of condensed matter and applied physics
List of research projects	<p>Supervisor :</p> <p>Grant of the President of the Russian Federation to support young scientists with Ph.D. MK-2626.2005.2 "Influence of magnetic field on electronic and exciton systems in low-dimensional nanostructures", .(2005-2006)</p> <p>2. Grant under the program: "Development of scientific higher education" "Research of systems of arbitrary dimension and quantum mechanical effects in nanosystems" (2005)</p> <p>Executor: Grants of the Russian Foundation for Basic Research</p>
List of possible research topics	Quantum dot thermodynamics; Quantum neural networks built of quantum dots
 <p>Research supervisor: Kaputkina Natalia, Doctor NUST MISiS</p>	Physics of condensed matter
	<p>Supervisor's research interests:</p> <p>Physics of low-dimensional structures, theory and computer simulation</p> <ul style="list-style-type: none"> • Quantum wells, quantum dots. • Interaction with electric and magnetic fields. • Quantum neural networks • quantum dot thermodynamics
	Supervisor's specific requirements:
	<p>• <i>The applicant is expected to have standard university background in quantum mechanics and quantum statistical mechanics</i></p> <p>Supervisor's main publications:</p> <ul style="list-style-type: none"> • Altaisky, M.V., Kaputkina, N.E. & Raj, R. <i>Multiresolution Quantum Field Theory in Light-Front Coordinates. Int J Theor Phys</i> 61, 46 (2022) • M. Altaisky and N. Kaputkina, "Thermodynamic restrictions on artificial intelligence based on quantum systems," 2021 5th Scientific School Dynamics of Complex Networks and their Applications (DCNA), 2021, pp. 10-13, IEEE, • Altaisky, M.V., Kaputkina, N.E. & Krylov, V.A. <i>Dynamics of Quantum States in a System of 3 Quantum Dots with Dipole-Dipole Interaction. Phys. Part. Nuclei Lett.</i> 16, 911–915 (2019) • Altaisky, M.V., Kaputkina, N.E. & Krylov, V.A. <i>Symmetry and Decoherence-Free Subspaces in Quantum Neural Networks. Phys. Atom. Nuclei</i> 81, 792–798 (2018)

	<ul style="list-style-type: none"> • <i>M. V. Altaisky, M. Hnatich, and N. E. Kaputkina</i> <i>Renormalization of viscosity in wavelet-based model of</i> <i>turbulence, Phys. Rev. E 98, 033116</i> <i>(2018)</i>
	<p>Results of intellectual activity</p> <p>Laureate of Grant of Moscow” competition in the sciences and technologies in educational field, Umberto Grassano’s Prize, author of 3 monographies and 2 patents.</p>