

## Potential scientific supervisors: Physical Sciences & Technology

№	Surname	Name	University	Scientific interests	Link to portfolio
1.	Alikin	Denis	Ural Federal University named after the first President of Russia B.N. Yeltsin	Research primarily centers on ferroelectric materials, which hold significant promise in the realms of electronics, energy storage, and actuator devices. Also research focus revolves around the examination of defects within semiconductor ferroelectrics and their impact on functional properties. This includes conductivity and dielectric properties, polarization reversal, screening, and the piezo- and pyroelectric effects.	<a href="https://urfu.ru/en/research/postgraduate-programs-in-english/admission-options/open-doors-olympiad/research-supervisors/denis-o-alikin/">https://urfu.ru/en/research/postgraduate-programs-in-english/admission-options/open-doors-olympiad/research-supervisors/denis-o-alikin/</a>
2.	Andrukhova	Olga	University of Science and Technology MISIS	Computer modeling of the kinetics of the ordering/disordering process, the evolution of the structure (nano, micro, meso levels) and the order-disorder phase transition (FPPB) in multicomponent thin metal films.	<a href="https://en.misis.ru/files/-/eea513ea865d14500bd485d20757768e/andrukhova_a.pdf">https://en.misis.ru/files/-/eea513ea865d14500bd485d20757768e/andrukhova_a.pdf</a>
3.	Belov	Pavel	ITMO University	Metamaterials: 1. Radiophysics 2. Diffraction and scattering of electromagnetic waves 3. Metamaterials 4. Wireless data transmission 5. Magnetic resonance imaging 6. Nanoantennas	<a href="https://aspirantura.itmo.ru/?main=43">https://aspirantura.itmo.ru/?main=43</a>
4.	Beterov	Ilya	Novosibirsk State University	Quantum computing based on single neutral atoms and atomic ensembles, quantum algorithms for quantum supremacy.	<a href="https://www.nsu.ru/upload/mediabrary/ab4/3hkkxij97lem2z8m9fvgrc6ofnb0u59/Beterov%20%D0%B0%D0%BD%D0%B3%D0%B.pdf">https://www.nsu.ru/upload/mediabrary/ab4/3hkkxij97lem2z8m9fvgrc6ofnb0u59/Beterov%20%D0%B0%D0%BD%D0%B3%D0%B.pdf</a>
5.	Bogdanov	Andrey	ITMO University	Theoretical nanophotonics and metamaterials: 1. Bound states in the continuum 2. Surface Waves 3. Plasmonics 4. Photonics 5. Metamaterials and Metasurfaces	<a href="https://aspirantura.itmo.ru/?main=43">https://aspirantura.itmo.ru/?main=43</a>

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				6. Microcavities 7. Solid State Physics and Physics of Semiconductors	
6.	Eremina	Rushana	Kazan (Volga region) Federal University	Magnetic phase transitions in double perovskites $Sr_2Me'Me''O_6$ ; On the theory of electric fields on 4f electrons in rare-earth oxide compounds, taking into account the spatial distribution of charges on oxygen	<a href="https://kpfu.ru/portal/docs/F_965388237/portfolio.Eremina.R.M.docx">https://kpfu.ru/portal/docs/F_965388237/portfolio.Eremina.R.M.docx</a>
7.	Fomin	Igor	Federal State Budgetary Educational Institution of Higher Education «Bauman Moscow State Technical University»	Applications of the modern theory of gravitation to actual problems of cosmology, astrophysics and gravitational-wave research.	<a href="https://opendoors.bmstu.ru/eng.html">https://opendoors.bmstu.ru/eng.html</a>
8.	Gafurov	Marat	Kazan (Volga region) Federal University	Application and development of multifrequency magnetic resonance methods for biomedical applications in the study of complexes of biologically active substances, implants, new contrast agents for imaging and drug delivery	<a href="https://kpfu.ru/portal/docs/F_48497087/portfolio.Gafurov.M.R.ang.docx">https://kpfu.ru/portal/docs/F_48497087/portfolio.Gafurov.M.R.ang.docx</a>
9.	Glazov	Dmitry	ITMO University	Quantum electrodynamics of atomic systems Development of new methods in relativistic atomic theory Zeeman splitting in highly charged ions: g factor and nonlinear effects Hyperfine structure of highly charged ions Determination of fundamental constants Atoms and molecules in strong fields Heavy molecular ions	<a href="https://int.itmo.ru/en/opendoors.php">https://int.itmo.ru/en/opendoors.php</a>
10.	Glushkov	Dmitriy	National Research Tomsk Polytechnic University	condensed matter, fuel, energy source, heat and mass transfer, chemical reaction, experimental research, mathematical modeling, gel fuel.	<a href="https://tpu.ru/upload/medialibrary/5b2/hcinwnz824ci9owg4yojckrn1uxpr3yc/Glushkov-en.pdf">https://tpu.ru/upload/medialibrary/5b2/hcinwnz824ci9owg4yojckrn1uxpr3yc/Glushkov-en.pdf</a>

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11.	Kartsev	Alexey	University of Science and Technology MISIS	Solid State Physics, Electronic Theory of Solids, Scientific Programming, Lattice Dynamic, Density Functional Theory, Many-body Theory, Strongly Correlated Systems, Hubbard Model, UltraCold Atoms, Exact static and time-dependent methods, Numerical solution of model Hamiltonians, 2D materials and van der Waals crystals, Magnetism in 2D.	<a href="https://en.misis.ru/files/-/3ae0efc0a38119d39ad23075f98c0bbf/portfolio-karcev-e.pdf">https://en.misis.ru/files/-/3ae0efc0a38119d39ad23075f98c0bbf/portfolio-karcev-e.pdf</a>
12.	Khamzin	Airat	Kazan (Volga region) Federal University	Theory of dielectric response and conductivity of complex systems. Correlation effects in the ionic conductivity of ionic liquids and electrolytes.	<a href="https://kpfu.ru/portal/docs/F1461778307/Khamzin.ang.docx">https://kpfu.ru/portal/docs/F1461778307/Khamzin.ang.docx</a>
13.	Khomitsky	Denis	National Research Lobachevsky State University of Nizhny Novgorod	Theory of nanostructures, spintronics; Optical and transport properties of nanostructures; Spin dynamics in quantum dots and topological insulators; Regular and irregular dynamics of spin in nonstationary fields.	<a href="http://eng.unn.ru/images/Open_Doors/Profiles/khomitsky.pdf">http://eng.unn.ru/images/Open_Doors/Profiles/khomitsky.pdf</a>
14.	Konevega	Andrey	Peter the Great St. Petersburg Polytechnic University	Nuclear medicine, molecular biophysics, structural biology, cryoelectron microscopy, cell biology, molecular biology, etc.	<a href="https://opendoors.spbstu.ru/files/supervisors_portfolio/konevega.pdf">https://opendoors.spbstu.ru/files/supervisors_portfolio/konevega.pdf</a>
15.	Kuznetsov	Eduard	Ural Federal University named after the first President of Russia B.N. Yeltsin	Study of dynamic evolution of space debris in the vicinity of the region of motion of satellites of global navigation systems in both medium and geosynchronous orbits. Study of stability and stochastic properties of orbital evolution.; Study of variations in the coordinates of continuous operating reference station network. Estimation of the accuracy of determining the coordinates of continuous operating reference station in mid-latitudes region depending on solar and geomagnetic activity, the value of the total electron content and the relative humidity of the neutral atmosphere; Investigation of the applicability of radar interferometry for deformation monitoring of both	<a href="https://urfu.ru/en/research/postgraduate-programs-in-english/admission-options/opendoors-olympiad/research-supervisors/eduard-d-kuznetsov/">https://urfu.ru/en/research/postgraduate-programs-in-english/admission-options/opendoors-olympiad/research-supervisors/eduard-d-kuznetsov/</a>

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				natural and artificial objects. Comparison of the accuracy of estimates obtained by radar interferometry with ground-based measurements.	
16.	Makarov	Sergey	ITMO University	Perovskite nanophotonics: 1. Perovskite nanolasers and microlasers 2. Effects of nanophotonics in thin-film optoelectronic devices 3. Perovskite devices with dual functionality 4. Highly efficient perovskite solar cells	<a href="https://aspirantura.itmo.ru/?main=43">https://aspirantura.itmo.ru/?main=43</a>
17.	Moskvin	Alexander	Ural Federal University named after the first President of Russia B.N. Yeltsin	Theory of strongly correlated systems, high-temperature superconductivity, magnetism, optics.	<a href="https://urfu.ru/en/research/postgraduate-programs-in-english/admission-options/open-doors-olympiad/research-supervisors/alexander-s-moskvin/">https://urfu.ru/en/research/postgraduate-programs-in-english/admission-options/open-doors-olympiad/research-supervisors/alexander-s-moskvin/</a>
18.	Nikitin	Andrey	ITMO University	Power engineering: scientific research is carried out in the field of thermodynamic and thermophysical processes.	<a href="https://aspirantura.itmo.ru/?main=43">https://aspirantura.itmo.ru/?main=43</a>
19.	Noskov	Anton	University of Science and Technology MISIS	Coherent X-ray radiation of relativistic electrons in single crystals, periodic layered media and composite structures. Dynamic diffraction of X-ray radiation in single crystals and periodic layered media.	<a href="https://en.misis.ru/files/-/240a30e24a40fad4c586d2c56f14011b/portfolio-noskov-e.pdf">https://en.misis.ru/files/-/240a30e24a40fad4c586d2c56f14011b/portfolio-noskov-e.pdf</a>
20.	Orlova	Anna	ITMO University	Fundamental research in the field of development of colloidal systems and multilayer coatings based on colloidal quantum-sized semiconductor 0D, 1D and 2D nanocrystals; magnetic nanoparticles; metal oxides; molecular generators of reactive oxygen species (ROS); specific indicator molecules; porous dielectric matrices.	<a href="https://aspirantura.itmo.ru/?main=43">https://aspirantura.itmo.ru/?main=43</a>
21.	Petrov	Nikolay	ITMO University	1. Digital holography 2. Phase retrieval 3. Terahertz technology 4. Singular optics 5. Femtosecond optics 6. Nonlinear optical properties	<a href="https://aspirantura.itmo.ru/?main=43">https://aspirantura.itmo.ru/?main=43</a>

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22.	Piskunov	Maxim	National Research Tomsk Polytechnic University	Physico-chemical hydrodynamics and heat and mass transfer, Energy & Fuels	<a href="https://tpu.ru/university/documents/%D0%9F%D0%B8%D1%81%D0%BA%D1%83%D0%BD%D0%BE%D0%B2%20%D0%90%D0%AF.pdf">https://tpu.ru/university/documents/%D0%9F%D0%B8%D1%81%D0%BA%D1%83%D0%BD%D0%BE%D0%B2%20%D0%90%D0%AF.pdf</a>
23.	Polyutov	Sergey	Siberian Federal University	Resonant X-ray spectroscopy, quantum chemistry, plasmonics, photonics, mathematical modeling (including machine learning).	<a href="https://www.sfu-kras.ru/files/Polyutov_S.P._Struktura_nauchnogo_profilya_portfolio_PNR_2023_ENG_0.pdf">https://www.sfu-kras.ru/files/Polyutov_S.P._Struktura_nauchnogo_profilya_portfolio_PNR_2023_ENG_0.pdf</a>
24.	Rybin	Mikhail	ITMO University	Bound states in the continuum, phase change materials, quasicrystals, resonant interaction of light with photonic structures, Fano resonances, all dielectric metamaterials, photonic crystals, and nanoantennas.	<a href="https://aspirantura.itmo.ru/?main=43">https://aspirantura.itmo.ru/?main=43</a>
25.	Safronov	Ivan	University of Science and Technology MISIS	Formation of specified physical and mechanical properties of thin tapes and films of amorphous and amorphous nanocrystalline metal alloys by exposure to short-pulse laser radiation.	<a href="https://en.misis.ru/files/-/f03b2ccd41561835622197ac7ebc8f7a/portfolio-safronov-e.pdf">https://en.misis.ru/files/-/f03b2ccd41561835622197ac7ebc8f7a/portfolio-safronov-e.pdf</a>
26.	Savelyeva	Inga	Federal State Budgetary Educational Institution of Higher Education «Bauman Moscow State Technical University»	Fundamental training in the fields of theoretical and applied mathematics and on this basis comprehend modern computer technologies with application in the tasks of design and calculation of the most important mechanisms and devices from various fields of mechanical engineering, instrumentation, aerospace engineering, economics, ecology and others.	<a href="https://opendoors.bmstu.ru/eng.html">https://opendoors.bmstu.ru/eng.html</a>
27.	Sheremet	Mikhail	National Research Tomsk State University	Conjugate heat and mass transfer Natural, mixed and forced convection Heat and mass transfer in porous media Fluid flow and heat transfer in nanofluids Turbulent heat and mass transfer Convective-radiative heat transfer Heat transfer and flow pattern in electronic systems Bioheat and mass transfer	<a href="http://tsuod.tilda.ws/sheremeten">http://tsuod.tilda.ws/sheremeten</a>

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				Heat transfer and flow pattern in building elements Computational fluid dynamics and heat transfer.	
28.	Sheremet	Evgeniya	National Research Tomsk Polytechnic University	The work of Prof. Sheremet focuses on nanomaterials. The study of laser treatment processes on nanomaterials and their composites are the basis for the fabrication of graphene-based composites for biomedical applications. Plasmonic nanomaterials have a special benefit of working as nano-antennas focusing light at the nanoscale and enhancing optical spectroscopy signals. It is used for nanospectroscopy applications.	<a href="https://tpu.ru/upload/medialibrary/5a6/shbgtoylqhu5qzvd0t4jkfrg529gz9z/SHeremet-AYA.pdf">https://tpu.ru/upload/medialibrary/5a6/shbgtoylqhu5qzvd0t4jkfrg529gz9z/SHeremet-AYA.pdf</a>
29.	Strizhak	Pavel	National Research Tomsk Polytechnic University	heat and mass transfer, ignition, condensed substance, composite fuel, alternative sources of energy, phase transform, numerical simulation, physical experiment, heat power engineering.	<a href="https://tpu.ru/upload/medialibrary/9cb/zy10vti53qbbe8pjxhwcjlpqw1y8goun/Strizhak-AYA.pdf">https://tpu.ru/upload/medialibrary/9cb/zy10vti53qbbe8pjxhwcjlpqw1y8goun/Strizhak-AYA.pdf</a>
30.	Surmenev	Roman	National Research Tomsk Polytechnic University	Smart materials, ferroelectric, magnetoelectric, composites, implants, tissue engineering, surface modification, piezoresponse force microscopy, scaffolds, piezoelectric materials, magnetic field, ultrasound, flexible electronics, graphene-containing 2D materials and applications.	<a href="https://tpu.ru/upload/medialibrary/e6a/14w4x29mf4u3sl0z52n8rvqbw5mkjso/Surmenev-AYA-1.pdf">https://tpu.ru/upload/medialibrary/e6a/14w4x29mf4u3sl0z52n8rvqbw5mkjso/Surmenev-AYA-1.pdf</a>
31.	Ushakov	Ivan	University of Science and Technology MISIS	Formation of specified physical and mechanical properties of thin tapes and films of amorphous and amorphous nanocrystalline metal alloys by exposure to short-pulse laser radiation.	<a href="https://en.misis.ru/files/-/ad2526114c8e45c5d26f9f393ba70378/portfolio-ushakov-e.pdf">https://en.misis.ru/files/-/ad2526114c8e45c5d26f9f393ba70378/portfolio-ushakov-e.pdf</a>
32.	Ushakova	Elena	ITMO University	Synthesis and functionalization of carbon nanoparticles by solvothermal and microwave methods. Hybrid materials based on carbon nanoparticles and metal, semiconductor and magnetic nanoparticles. Carbon nanoparticles emitting in the red and near infrared region of the spectrum. Chiral carbon nanoparticles for theranostics. Sensors based on carbon nanoparticles.	<a href="https://aspirantura.itmo.ru/?main=43">https://aspirantura.itmo.ru/?main=43</a>

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33.	Venediktov	Vladimir	Saint Petersburg Electrotechnical University "LETI"	Structured light beams (scalar and vector optical vortices, Bessel, Airy and similar beams), their generation, propagation and analysis; Holographic tools in adaptive optics; Advanced wavefront sensors; Advanced sensors of rotation (gyroscopes) on the base of passive ring cavities (integral optics, confocal cavities and resonators of whispering gallery modes); Metasurfaces in angle and position sensing.	<a href="https://etu.ru/assets/files/oda/venediktov.pdf">https://etu.ru/assets/files/oda/venediktov.pdf</a>
34.	Vinnichenko	Maksim	Peter the Great St. Petersburg Polytechnic University	Optical phenomena and nonequilibrium charge carriers in semiconductors and nanostructures. Development of new optoelectronic devices (sources and detectors) in the mid-infrared and terahertz spectral ranges.	<a href="https://opendoors.spbstu.ru/files/supervisors_portfolio/vinnichenko.pdf">https://opendoors.spbstu.ru/files/supervisors_portfolio/vinnichenko.pdf</a>
35.	Yakovleva	Valentina	National Research Tomsk Polytechnic University	Radioactivity in the environment; Dosimetry and radiometry; Simulation of ionizing radiation transport.	<a href="https://tpu.ru/upload/medialibrary/b87/nrurq0c7oeg1nah864uhdzq97tgwz6lb/YAkovleva-AYA_.pdf">https://tpu.ru/upload/medialibrary/b87/nrurq0c7oeg1nah864uhdzq97tgwz6lb/YAkovleva-AYA_.pdf</a>
36.	Zabenkov	Igor	University of Science and Technology MISIS	Identification, calculation, analysis of morphology, physiological parameters, as well as determination of the molecular composition of the shaped elements of human blood in the native state based on methods of optical spectral digital microscopy and the use of computer vision methods.	<a href="https://en.misis.ru/files/-/e9046011b350867a7cfea80d58c948cd/zabenkov_a.pdf">https://en.misis.ru/files/-/e9046011b350867a7cfea80d58c948cd/zabenkov_a.pdf</a>
37.	Zatsepin	Anatoly	Ural Federal University named after the first President of Russia B.N. Yeltsin	Electron-optical properties of disordered and low-dimensional structures; Applied optics and photonics of functional materials; Radiation physics, electronic excitations and defect states in materials for micro-optoelectronics; Energy structure and electronic-optical properties of nanomaterials based on nanocarbon or its analogs.	<a href="https://urfu.ru/en/research/postgraduate-programs-in-english/admission-options/opendoors-olympiad/research-supervisors/anatoly-f-zatsepin/">https://urfu.ru/en/research/postgraduate-programs-in-english/admission-options/opendoors-olympiad/research-supervisors/anatoly-f-zatsepin/</a>