Potential scientific supervisors: Chemistry & Materials Science

№	Surname	Name	University	Scientific interests	Link to portfolio
1.	Kurzina	Irina	National Research Tomsk State University	1. Electrophysical foundations of ion-plasma technologies for modifying the surface properties of polymer materials 2. Physico-chemical bases of synthesis and phase formation of ion-modified biocompatible and bioresorbable hydroxyapatite under microwave exposure. 3. Physical bases of hardening of ultrafine-grained titanium under irradiation with aluminum and nickel ions. 4. Development of new highly efficient adsorbents and technologies for their application to increase the volume and quality of APG processing at oil and gas processing enterprises of the Siberian region. 5. Scientific bases of new production technologies for obtaining high-performance composite materials and complex-profile products. 6. Development of the fundamental foundations for the production of new organic and polymer compounds and materials. 7. Search for biomarkers and therapeutic targets in the processes of chronic inflammation associated with the progression of malignant neoplasms, regenerative processes of cardiovascular diseases and implantolog.	http://tsuod.tilda.ws/kurzinaen
2.	Zelentsov	Sergey	National Research Lobachevsky State University of Nizhny Novgorod	Quantum chemistry, photochemistry, plasma chemistry, potential energy surface method, reaction mechanisms in high energy chemistry, photolithography, electron lithography, photochemistry of azides and nitro compounds, mathematical methods in chemistry.	http://eng.unn.ru/images/Open_Doors/Profiles/zelentsov.pdf
3.	Stepanova	Elena	National Research Tomsk Polytechnic	Carbohydrate chemistry. Total synthesis. Protective groups in carbohydrates.	https://tpu.ru/upload/medialibrary/01d/vyvrcc6s0m0dk2j52h2nv9lk1

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			University		hykq5nf/Stepanova-_AYA_.pdf
4.	Romanenko	Sergey	National Research Tomsk Polytechnic University	analytical chemistry, analysis of environmental objects, energy efficiency.	https://tpu.ru/upload/medialibrary/b58/yka18s2n1v8en4vlm7d928odji7u9175/Romanenko-_AYA_.pdf
5.	Rodriguez	Raul	National Research Tomsk Polytechnic University	The work of Prof. Rodriguez 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 a wide range of applications from biomedicine to energy. 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 and nanoelectronics.	https://tpu.ru/upload/medialibrary/bf1/nnbpu2cz3kmtef4pvnhy30xggeukk1tz/Rodriges-_AYA_.pdf
6.	Postnikov	Pavel	National Research Tomsk Polytechnic University	1. Functional upcycling of polymer wastes towards design of smart materials 2. Plasmon-assisted transformations of organic compounds 3. Design of smart materials for environmental chemical engineering 4. Targeted design of non-covalent organic frameworks 5. Non-covalent catalysis in organic synthesis 6. Novel hypervalent iodine reagents 7. Surface chemistry in sensor design	https://tpu.ru/upload/medialibrary/139/56uwzhvvb6b97so2gggw734wl0dd034z/Postnikov-AYA.pdf
7.	Savchenkov	Anton	Samara University	Synthesis, structure elucidation and relationship among composition/structure/properties of coordination compounds. Implementation of stereoatomic model and Voronoi–Dirichlet tessellation for analysis of crystal structures, including noncovalent interactions, polymorphism, actinide contraction and more.	https://ssau.ru/storage/pages/5566/file_66f6b8b91ee3f8.12948670.pdf
8.	Belskaya	Nataliya	Ural Federal University named	Design and synthesis of novel organic fluorophores for bioimaging applications	https://urfu.ru/en/research/postgraduate-programs-in-

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			after the first President of Russia B.N. Yeltsin	Synthesis of fluorescent photoprotective groups for targeted delivery of diagnostic agents and drugs.	english/admission-options/open-doors-olympiad/research-supervisors/nataliya-p-belskaya/
9.	Vasilyeva	Marina	Far Eastern Federal University	Environmental chemistry, electrochemical synthesis of film functional materials, plasma electrolytic oxidation, heterogeneous catalysis, photocatalysis, surface chemistry, electrode materials, electrochemical sensors.	https://www.dvfu.ru/en/open_doors/vasilyeva/
10.	Gushchin	Artem	Novosibirsk State University	Complexes of platinum group metals and gold with redox-active N-donor ligands: synthesis, study of structure, physicochemical properties and biological activity.	https://www.nsu.ru/upload/medialibrary/2cd/v1un10b7iqyio9s66o1uvlmdd2697zg5/%D0%93%D1%83%D1%89%D0%B8%D0%BD_%D0%B0%D0%BD%D0%B3%D0%BB.pdf
11.	Potapov	Andrei	Novosibirsk State University	Novel metal-organic frameworks with high luminescence for the detection of biologically active substances and environmental pollutants; Switchable metal-organic frameworks for the development of smart optical materials.	https://www.nsu.ru/upload/medialibrary/acb/yex1noe6qneisjy9wprx036lbdbur8j2/potapov-russian.pdf
12.	Sadykov	Vladislav	Novosibirsk State University	Synthesis and characterization of materials with mixed ionic-electronic conductivity for oxygen and hydrogen separation membranes; nanocomposite materials for catalysts of biofuels transformation into syngas and hydrogen	https://www.nsu.ru/upload/medialibrary/951/iirb66g4z9sig4aswro8qd94rwc4tr1b/%D0%A1%D0%B0%D0%B4%D1%8B%D0%BA%D0%BE%D0%B2_%D0%B0%D0%BD%D0%B3%D0%BB_2023.pdf
13.	Naumov	Anton	Peter the Great St. Petersburg Polytechnic University	Synthesis of composite materials by means of Friction Stir Processing	https://opendoors.spbstu.ru/files/supervisors_portfolio/naumov.pdf
14.	Ushakova	Elena	ITMO University	Synthesis and functionalization of carbon nanoparticles by solvothermal and microwave methods Hybrid materials based on carbon nanoparticles and	https://aspirantura.itmo.ru/?main=43

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				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	
15.	Smirnov	Evgeny	ITMO University	Nanotechnology, material science, nanoparticles: synthesis and properties of colloidal particles, preparation of novel materials. Physical chemistry, surface chemistry: self-assembly at soft interfaces (liquid-liquid, liquid-air, etc.). Electrochemistry: investigation of properties of nanoparticles and their assemblies, in particular, for photocatalytic and electrocatalytic applications. Analytical chemistry: application of nanoparticles and their assemblies for surface enhanced methods, for example, SERS, as well as in ELISA-based methods.	https://aspirantura.itmo.ru/?main=43
16.	Skorb	Ekaterina	ITMO University	Infochemistry and self-organization for chemical systems. Development of interdisciplinary approaches of chemistry with IT with study and modeling of chemical systems at interfaces for programmable, smart materials for medicine, diagnostics, energy, etc.	https://aspirantura.itmo.ru/?main=43
17.	Romanov	Aleksei	ITMO University	1. Micro- and nanomechanics of disclinations in solids. 2. Mesoscopic models of plastic deformation and fracture. 3. Physical and mechanical properties of amorphous, nanostructured and nanocomposite materials. 4. Micro- and nanomechanics of dislocation defects in thin film materials of electronics and optoelectronics. 5. Theoretical foundations of modern optoelectronic devices.	https://aspirantura.itmo.ru/?main=43
18.	Novikov	Alexander	ITMO University	Studying the properties of (bio)active and functional chemical systems at all levels of matter organizations	https://aspirantura.itmo.ru/?main=43

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				(from the nano- to the macrolevel) through the use of DFT calculation methods, chemoinformatics, correlation analysis, computer modeling and the creation of descriptor systems for describing complex macromolecules.	
19.	Krivoshapkina	Elena	ITMO University	Developed original methods for the synthesis of metal and metal oxide nanoparticles using solution chemistry; investigated the principles of nanoparticle distribution in polymer and inorganic matrices; investigated membrane catalytic reactor protection and the dependence of the catalytic activity on the morphology of the separating layers; investigated the assembly of hybrid systems based on polysaccharide, carbon, scleroprotein and metal oxide nanoparticles; and synthesized and manufactured nanomaterials catalytic, imaging, and sensing applications. Created nanomaterials with improved optical and mechanical properties; used the extended DLVO theory to estimate the interaction energy of particles in aqueous and water-hazardous metal oxide systems, taking into account the structural component of surface forces; identified the key approaches to the production of natural biopolymer-based hybrid materials, which is the foundation for the development of new functional organo-inorganic materials which, due to the combination of components with different structures and properties, have synergistic effects and unique properties. The developed inorganic nanoparticle-modified biopolymer-based material solves a wide range of problems.	https://aspirantura.itmo.ru/?main=43
20.	Shityakov	Sergey	ITMO University	Neuroscience, precision medicine, bioinformatics, biomedical engineering, and rational drug design at the blood-brain barrier using modern computer modelling methods of chemical interactions.	https://aspirantura.itmo.ru/?main=43

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21.	Ulasevich	Svetlana	ITMO University	The main research interests concern biomimetic materials and the development of bioactive materials based on functional coatings based on titanium dioxide and polymer systems, as well as the study of their principles of functioning and biological response. Functional coatings and stimuli-responsive dynamic systems have been developed to create microdosing systems for the controlled release of drugs, active chemicals, as well as to regulate and control the growth of osteoblast cells. The sonochemical fabrication of functional materials and coatings.	https://aspirantura.itmo.ru/?main=43
22.	Muravev	Anton	ITMO University	Organic synthesis of small organic molecules and macrocycles (calixarenes, crown-ethers, melamines, barbituric and cyanuric acids, terpyridines, pyrazoles) using click reactions. Supramolecular interactions between organic compounds and metal ions, as well as biomolecules in solution, gas and solid phases, as well as liquid–liquid and liquid–gas interfaces. Programmable functional characteristics of organic compounds and their supramolecular complexes – luminescence, piezoelectric effect, catalysis of organic reactions, biological activity.	https://aspirantura.itmo.ru/?main=43