


The portfolio of Russian Scholarship Project supervisors for post-graduate programs in 2020-2021

University	Siberian Federal University
English language proficiency	B2/C1
Major	Optics
Major code	01.04.05
Research projects	<p>Recent 3 years projects:</p> <ol style="list-style-type: none"> 1) <i>Development of fundamental basics of promising optical and magnetic materials and synchrotron X-ray spectral methods for studying the matter.</i> The head of the project, held by the Ministry of Science and Higher Education. 2020-2022. 2) <i>Energy and charge transfer in molecular systems controlled by strong and weak X-ray pulses.</i> 2017-2020. Executive manager of the RSF project. 3) <i>Computer simulation of hybrid 2D nanomaterials for creating elements of plasmonics and nonlinear optics for the visible and near-infrared range.</i> 2018-2020. Executive manager of the RSF project. 4) <i>Development of synchrotron pump-sensing methods for studying the dynamics of phase transitions in a liquid.</i> 2020-2021. Executive manager of the RFBR project
List of research topics	<ol style="list-style-type: none"> 1) Resonant synchrotron X-ray spectroscopy of molecular and condensed media. 2) Nanoplasmonics, photonics (modeling of hybrid 2D nanomaterials). 3) Quantum chemistry (applications in X-ray spectroscopy and nanoplasmonics).
	Optics and spectroscopy
	<p>Supervisor's research interests:</p> <p><i>For almost 10 years I have worked in the world's leading universities in Sweden and Germany. The area of my scientific interests ranges from resonance X-ray spectroscopy, quantum chemistry, plasmonics, light-harvesting complexes to biotechnology. In recent years, my main research interests have been focused on modeling processes and phenomena in the field of synchrotron spectroscopy and plasmonics.</i></p>
	<p>Research highlights:</p> <p><i>Programs are funded by RSF and RFBR grants, as well as grants of the Ministry of Science and Higher Education.</i></p> <ul style="list-style-type: none"> • <i>Scientific work is carried out in close cooperation with international scientific centers (Sweden, China, USA, France, Germany). In particular, cooperation is underway with experimental scientific groups working on synchrotrons and a free-electron laser in Hamburg.</i> • <i>Joint Ph.D. double degree program with the world's leading universities.</i>
Research supervisor: Sergey P.	

Polyutov, PhD (Royal Institute of Technology, Stockholm, Sweden)	<p><i>Short-term and long-term internships in international research centers.</i></p> <ul style="list-style-type: none"> • <i>For the period of study and scientific work, 1-2 room apartment on campus is provided (\$ 100 fee per month).</i>
	<p>Supervisor's specific requirements:</p> <ul style="list-style-type: none"> • <i>Area of specialty: nonlinear optics, X-ray spectroscopy, nanoplasmonics, quantum chemistry (at least, one of these areas);</i> • <i>Good programming skills (C ++, Fortran, Matlab).</i>
	<p>Supervisor's main publications:</p> <p>29 publications in journals indexed by Web of Science and/or Scopus over the past 5 years (23 publications – the first quartile of Q1). Key publications in the last 5 years:</p> <ul style="list-style-type: none"> • <i>1) M. Schroter, S. D. Ivanov, J. Schulze, S. P. Polyutov, Y. Yan, T. Pullerits, O.Kuhn, Exciton-Vibrational Coupling in the Dynamics and Spectroscopy of Frenkel Excitons in Molecular Aggregates, Physics Reports, 567:1-78 (2015), (Journal Impact Factor (JIF): 25.798, Q1-first decile). http://www.sciencedirect.com/science/article/pii/S0370157314004104</i> • <i>2) Ceolin, Denis, Rueff, Jean-Pascal, Zimin, Andrey, Morin, Paul, Kimberg, Victor, Polyutov, Sergey, Agren, Hans, Gel'mukhanov, Faris, Far-Zone Resonant Energy Transfer in X-Ray Photoemission as a Structure Determination Tool, Journal of Physical Chemistry Letters (2017) (JIF: 6.71, Q1 – first percentile). http://pubs.acs.org/doi/abs/10.1021/acs.jpcllett.7b00835</i> • <i>3) Nina Ignatova, Vinicius V Cruz, Rafael C Couto, Emelie Ertan, Andrey Zimin, Sergey Polyutov, Hans Agren, Victor Kimberg, Michael Odelius, Faris Gel 'mukhanov, Gradual collapse of nuclear wave functions regulated by frequency tuned X-ray scattering, Scientific Reports, v.7, p. 43891 (2017) (JIF=4.26, Q1). https://www.nature.com/articles/srep43891</i> • <i>4) Zakomirnyi, Vadim I., Rasskazov, Ilia L., Gerasimov, Valeriy S., Ershov, Alexander E., Polyutov, Sergey P, Karpov, Sergei V, Refractory titanium nitride two-dimensional structures with extremely narrow surface lattice resonances at telecommunication wavelengths, Applied Physics Letters, 111, 12 (2017) (JIF=3.41, Q1). http://aip.scitation.org/doi/10.1063/1.5000726</i> • <i>5) N. Venugopal, V. S. Gerasimov, A.E. Ershov, S.V. Karpov, S.P. Polyutov, Titanium Nitride as Light Trapping Plasmonic Material in Silicon Solar cell, Optical materials, V. 72, Pp 397–402 (2017) (JIF=2.24, Q1). http://www.sciencedirect.com/science/article/pii/S0925346717304147</i>