


University	St.Petersburg Electrotechnical university
Level of English proficiency	Fluent
Educational program and field of the educational program for which the applicant will be accepted	2.2.5 <i>Navigation instrumentation</i>
List of research projects of the potential supervisor (participation/leadership)	<p>Leadership:</p> <ol style="list-style-type: none"> 1) Development of the theory of acoustic vibrations for measuring the motion parameters of moving objects. 2) Development of methods for the production of inertial sensors on surface acoustic waves using laser technologies. <p>Participation:</p> <ol style="list-style-type: none"> 1) Development of new generation microsensors based on surface acoustic waves. 2) Development and creation of solid-state micro- and nanosensors to ensure traffic safety. 3) Development of inertial sensors based on ring resonators.
List of the topics offered for the prospective scientific research	<p>Development of acousto-optical microgyros based on surface acoustic waves</p> <p>Development of microaccelerometers based on surface acoustic waves</p> <p>Development of acoustoelectronic apparent acceleration accelerometers</p> <p>Development of wireless inertial microsensor technology</p>
 <p>Research supervisor: Alexander S. Kukaev, Candidate of Science (St. Petersburg Electrotechnical university)</p>	Supervisor's research interests <i>Development of inertial navigation sensors based on surface acoustic waves, whispering gallery modes and other acoustic, optical, piezoelectric effects.</i> <i>Modeling of temperature, electrical, optical, mechanical effects in various devices using the finite element method</i>
	Research highlights (<i>при наличии</i>) <i>A grant from the Russian Science Foundation on this topic was won for the period 2023–2026. A graduate student who demonstrates success in scientific work may receive financial support.</i>
	Supervisor's specific requirements: <i>Proficiency in finite element modeling packages (COMSOL, ANSYS, etc.) and basic programming skills is desirable.</i>
	Supervisor's main publications <i>Over the past 5 years, 23 publications are indexed in WoS and SCOPUS. The most important:</i> <i>1) Safronov D. V. et al. UV laser formation of complex topologies for sensitive elements of navigation sensors based on surface acoustic waves //Optics & Laser Technology. – 2024. – V. 169. – P. 110000.</i> <i>2) Filatov Y. V. et al. Experimental Investigation of an Optical Resonator Gyroscope with a Mach–Zehnder Modulator and Its Sensitive Elements //Photonics. – MDPI, 2022. – V. 10. – №. 1. – P. 4.</i> <i>3) Filatov Y. N. et al. Evaluation of Parasitic Effects in a Ring Confocal Resonator when Operating as A Gyroscope Sensing</i>

	<p><i>Element //2022 International Conference Laser Optics (ICLO). – IEEE, 2022. – P. 1-1.</i></p> <p><i>4) Kukaev A. S., Safronov D. V. Development of fast prototyping laser technique for production of surface acoustic wave gyroscopes //Journal of Physics: Conference Series. – 2020. – V. 1536. – P. 012014.</i></p> <p><i>5) Filatov Y. V. et al. Modeling of a ring confocal resonator field //Optical Engineering. – 2019. – V. 58. – №. 7. – P. 074103.</i></p>
	<p><i>Results of intellectual activity (при наличии)</i></p> <p><i>1) Software registration certificate №2019618521 «Automatic generator of models of SAW devices (DL-Builder)» from 02.07.2019</i></p> <p><i>2) Patent RU 2 730 423 C1 "Accelerometer for linear acceleration measurement" from 27.11.2019 //A.S. Kukaev, V.I. Gupalov, E.V. Shalymov</i></p> <p><i>3) Patent RU 2751051 C1 "Integrator of linear accelerations" from 23.11.2020 //V.I. Gupalov, A.S. Kukaev, D.V. Remizov</i></p> <p><i>4) Software registration certificate №2022680623 «Hole correction system in 3D scanning procedures (CKO-3D)» om 03.11.2022</i></p> <p><i>5) Eurasian Patent №202100246 «Integrator of linear accelerations» from 18.10.2021 // V.I. Gupalov, A.S. Kukaev, D.V. Remizov</i></p>