


**Researcher profile (portfolio) form for potential research supervisors of postgraduate track participants in the Global Universities Association International Olympiad for graduate and postgraduate applicants 2023-2024.**

University	Tomsk polytechnic university
Level of English proficiency	B2 Upper-intermediate
Educational program and field of the educational program for which the applicant will be accepted	2.2.8. Methods and instruments for monitoring and diagnostics of materials, products, substances and the natural environment
List of research projects of the potential supervisor (participation/leadership)	Executor of the federal target program No. 16.552.11.7063
List of the topics offered for the prospective scientific research	<ul style="list-style-type: none"> <li>– Development and research of polymer composite materials with reduced flammability and improved physical and mechanical properties, modified with nano- and microdispersed powders of inorganic nature.</li> <li>– Study of gaseous combustion products of polymer composite materials modified with nano- and microdispersed powders of inorganic nature.</li> </ul>
 <p>Research supervisor: Olga B. Nazarenko, Doctor of Science (TPU)</p>	<p>Map of Science</p> <p>2.05. Materials Technology, Materials Science - Interdisciplinary</p>
	<p>Supervisor's research interests</p> <ul style="list-style-type: none"> <li>– obtaining nanopowders of metals and chemical compounds by electrical explosion of conductors and studying their properties;</li> <li>– the influence of nanopowders and micropowders of inorganic compounds on the thermal stability and flammability of polymer composite materials;</li> <li>– influence of nanopowders and micropowders of inorganic compounds on the yield of gaseous combustion products of modified polymer composite materials</li> </ul>
	<p>Research highlights (при наличии)</p>
	<p>Supervisor's specific requirements:</p> <p>Knowledge of methods of thermal analysis, mass spectrometry, X-ray phase analysis, IR spectroscopy, etc.</p> <p>Knowledge of various programming methods</p>
	<p>Supervisor's main publications</p> <p>The total number of publications in journals indexed by Web of Science, Scopus, RSCI over the past 5 years is 48.</p> <p>1. Mostovshchikov A.V., Gubarev F.A., Nazarenko O.B., Pestryakov A.N. Influence of Short-Pulse Microwave Radiation on thermo-chemical properties Aluminum Micropowder. <i>Materials</i>. 2023. 16(3), Article number 951. p. 1-9. DOI: 10.3390/ma16030951.</p> <p>2. Mostovshchikov A.V., Goldenberg B.G., Nazarenko O.B. Effect of synchrotron radiation on thermochemical properties of aluminum micro- and nanopowders. <i>Materials Science and Engineering B</i>. 2022. 285(4–5): 115961. DOI: 10.1016/j.mseb.2022.115961.</p>

	<p>3. Nazarenko O.B., Amelkovich Y.A., Bannov A.G., Berdyugina I.S., Maniyan V.P. Thermal Stability and Flammability of Epoxy Composites Filled with Multi-Walled Carbon Nanotubes, Boric Acid, and Sodium Bicarbonate. <i>Polymers</i>. 2021. 13(4) 638. <a href="https://doi.org/10.3390/polym13040638">https://doi.org/10.3390/polym13040638</a>.</p> <p>4. Nazarenko O.B., Sechin A. I., Sechin A.A., Amelkovich Y.A. Flame propagation behavior of aluminum nanopowder in bulk layer. <i>Journal of Loss Prevention in the Process Industries</i>. 2020. 69(1):104353. DOI: 10.1016/j.jlp.2020.104353.</p> <p>5. Bannov A.G., Nazarenko O.B., Maksimovskii E.A., Popov M.V., Berdyugina I.S. Thermal Behavior and Flammability of Epoxy Composites Based on Multi-Walled Carbon Nanotubes and Expanded Graphite: A Comparative Study. <i>Applied Sciences</i>. 2020. 10. 6928; <a href="https://doi.org/10.3390/app10196928">https://doi.org/10.3390/app10196928</a>.</p>
	<p>Results of intellectual activity (при наличии)</p>