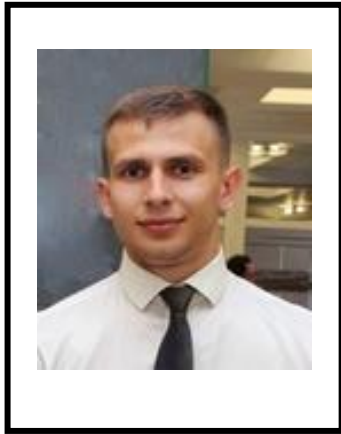


**Researcher profile (portfolio) form for potential research supervisors of postgraduate track participants in the Global Universities Association International Olympiad for graduate and postgraduate applicants 2023-2024.**

University	Tomsk polytechnic university
English language proficiency	B2 Upper-intermediate
Applicant's postgraduate program	Engineering and technology
List of research projects of a potential research supervisor (participation/leadership)	Russian Science Foundation grant "Development of methodological fundamentals and apparatus for thermal nondestructive testing of aviation composite materials by using a novel technique of continuous line scanning" (supervisor)
List of possible research topics	Thermal NDT Technique and technologies 2.11. Other technologies. Instruments and equipment.
 <p>Research supervisor: Arseniy O. Chulkov candidate of technical sciences (TPU)</p>	<p><u>Supervisor's research interests:</u></p> <ul style="list-style-type: none"> <li>– Active thermal non-destructive control of impact damage, delamination and cracks in composite materials such as carbon fiber, carbon-carbon, fiberglass, organoplastic, etc.</li> <li>– Detection of water in honeycomb composite panels used in the aerospace industry.</li> <li>– Detection of latent corrosion in metal shells up to 6 mm thick and assessment of the relative entrainment of the material.</li> <li>– Non-contact determination of thermophysical properties of materials.</li> <li>– Development of portable thermal imaging flaw detectors-tomographs.</li> <li>– Development of methods for thermal control of materials.</li> </ul>
	<p><u>Research highlights (if applicable):</u> Specify the key highlights of the program that make it stand out from others. (Use of unique equipment, collaboration with foreign scientists and research centers, financial support for graduate students, etc.) Work on unique equipment, work in a team with the world's leading scientists</p>
	<p><u>Supervisor's specific requirements:</u> This section is to be filled out if there are any requirements to a graduate student (required background/courses completed/ methods learned/ specific software knowledge and skills, etc)</p>
	<p><u>Supervisor's main publications</u> 53 in journals indexed by Web of Science, Scopus, RSCI for the last 5 years, list up to 5 most significant publications with the publication details):</p>

	<ol style="list-style-type: none"> <li>1. Chulkov, A.O., Vavilov, V.P., Shagdyrov, B.I., Kladov, D.Y. Automated detection and characterization of defects in composite-metal structures by using active infrared thermography <i>Journal of Nondestructive Evaluation</i>, 2023, 42(1), 20.</li> <li>2. Chulkov, A., Vavilov, V., Nesteruk, D., Burleigh, D., Moskovchenko, A. A method and apparatus for characterizing defects in large flat composite structures by Line Scan Thermography and neural network techniques. <i>Frattura ed Integrita Strutturale</i>, 2023, 17(63), P.110–121.</li> <li>3. Chulkov, A.O., Vavilov, V.P., Kladov, D.Y., Yurkina, V.A. Thermal Nondestructive Testing of Composite and Metal Parts Manufactured by Additive Technologies <i>Russian Journal of Nondestructive Testing</i>, 2022, 58(11), P.1035–1040.</li> <li>4. A.O. Chulkov, D.A. Nesteruk, V.P. Vavilov, B. Shagdirov, M. Omar, A.O. Siddiqui, Y.L.V.D. Prasad. Automated procedure for detecting and characterizing defects in GFRP composite by using thermal nondestructive testing // <i>Infrared Physics &amp; Technology</i>. 2021.114. <a href="https://doi.org/10.1016/j.infrared.2021.103675">https://doi.org/10.1016/j.infrared.2021.103675</a>.</li> <li>5. A.O. Chulkov, A. Sommier, C. Pradere, V.P. Vavilov, A.O. Siddiqui, Y.L.V.D. Prasad Analyzing efficiency of optical and THz infrared thermography in nondestructive testing of GFRPs by using the Tanimoto criterion // <i>NDT and E International</i>. 2021. 117. <a href="https://doi.org/10.1016/j.ndteint.2020.102383">https://doi.org/10.1016/j.ndteint.2020.102383</a>.</li> </ol>
	<p>Intellectual property rights (if applicable)  (list key intellectual deliverables)  Hirsch index - 14.  Co-author of 9 patents for inventions and 2 patents for utility models.  Head of the projects:</p> <ol style="list-style-type: none"> <li>1. RFBR Grant No. 19-29-13004 "Theoretical modeling and experimental studies of non-stationary three-dimensional thermal fields in anisotropic composite materials used in aerospace engineering for flaw detection and defectometry of hidden defects" Deadline: 01.12.2019-01.12.2022.</li> <li>2. Grant of the Russian Science Foundation No. 19-79-00049 "Development of methods and software algorithms for active thermal non-destructive testing of complex-shaped articles made of composite materials using artificial intelligence and robotic technology." Deadline: 01.07.2019-30.06.2021.</li> <li>3. Grant of the Tomsk Polytechnic University within the framework of a subsidy to increase the competitiveness of the university VIU-ISHFVP-304/2018 "Development of methods and equipment for active thermal control of materials and products of the aerospace industry", due date: 30.06.2018-31.12.2018.</li> <li>4 "Development of high-performance self-propelled equipment for active thermal control of polymer composite materials of aerospace profile, as well as algorithms for automated processing of test results during continuous scanning" within the framework of the scholarship of the President of the Russian Federation (SP-2305.2021.1). Completion date: 01.01.2021-31.12.2023.</li> </ol>