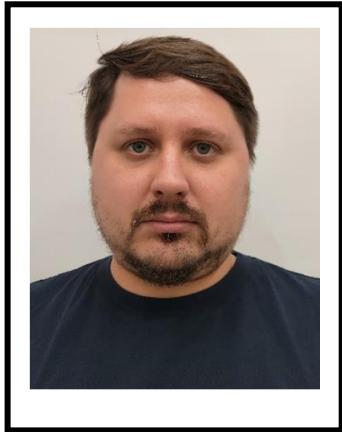


Researcher profile (portfolio) form for potential research supervisors of postgraduate track participants in the Global Universities Association International Olympiad for graduate and postgraduate applicants 2023-2024.

University	Tomsk Polytechnic University
Level of English proficiency	C1
Educational program and field of the educational program for which the applicant will be accepted	1.4.3. <i>Organic chemistry</i> 1.4.4. <i>Physical Chemistry</i>
List of research projects of the potential supervisor (participation/leadership)	PI: Megagrant project in frame of 220 PP RF «“Non-covalent interactions in the crystal chemical design of 3D molecular and 2D surface architectures for the creation of functional materials and solving problems of sustainable development chemistry”» это Russian-French bilateral project in frame of PHC «Колмогоров» «“Functional processing of polymer waste to create smart materials for environmental protection and green energy”» RSF grant «Plasmon-induced transformations of organic compounds: from fundamentals to application»
List of the topics offered for the prospective scientific research	1. <i>Functional upcycling of polymer wastes towards design of smart materials</i> 2. <i>Plasmon-assisted transformations of organic compounds</i> 3. <i>Design of smart materials for environmental chemical engineering</i> 4. <i>Targeted design of non-covalent organic frameworks</i> 5. <i>Non-covalent catalysis in organic synthesis</i> 6. <i>Novel hypervalent iodine reagents</i> 7. <i>Surface chemistry in sensor design</i>
	Supervisor’s research interests <i>Hypervalent iodine chemistry, surface chemistry, plasmon catalysis, functional upcycling of polymer wastes, hybrid materials, organic and metal-organic frameworks, supramolecular chemistry, non-covalent interactions</i>
	-
	Supervisor’s specific requirements: <i>Advanced organic synthesis</i> <i>Advanced English</i> <i>Advanced level of spectral characterization of organic compounds</i>
Research supervisor: Pavel S. Postnikov, Doctor of Chemical Science (NIOC SB RAS)	Основные публикации потенциального научного руководителя <i>130 papers for 5 years (WoS/Scopus)</i> (1) <i>Audran, G.; Bagryanskaya, E. G.; Bikanga, R.; Coote, M. L.; Guseynikova, O.; Hammill, C. L.; Marque, S. R. A.; Mellet, P.; Postnikov, P. S. Dynamic Covalent Bond: Modes of Activation of the C—ON Bond in Alkoxyamines. Progress in Polymer Science 2023, 144, 101726. DOI: https://doi.org/10.1016/j.progpolymsci.2023.101726.</i>

	<p>(2) Guselnikova, O.; Semyonov, O.; Sviridova, E.; Gulyaev, R.; Gorbunova, A.; Kogolev, D.; Trelin, A.; Yamauchi, Y.; Boukherroub, R.; Postnikov, P. "Functional upcycling" of polymer waste towards the design of new materials. <i>Chemical Society Reviews</i> 2023, 52 (14), 4755-4832, 10.1039/D2CS00689H. DOI: 10.1039/D2CS00689H.</p> <p>(3) Gulyaev, R.; Semyonov, O.; Mamontov, G. V.; Ivanov, A. A.; Ivanov, D. M.; Kim, M.; Švorčík, V.; Resnati, G.; Liao, T.; Sun, Z.; Yamauchi, Y.; Postnikov, P. S.; Guselnikova, O. Weak Bonds, Strong Effects: Enhancing the Separation Performance of UiO-66 toward Chlorobenzenes via Halogen Bonding. <i>ACS Materials Letters</i> 2023, 5 (5), 1340-1349. DOI: 10.1021/acsmaterialslett.2c01169.</p> <p>(4) Votkina, D.; Petunin, P.; Miliutina, E.; Trelin, A.; Lyutakov, O.; Svorcik, V.; Audran, G.; Havot, J.; Valiev, R.; Valiulina, L. I.; Joly, J.-P.; Yamauchi, Y.; Mokkaath, J. H.; Henzie, J.; Guselnikova, O.; Marque, S. R. A.; Postnikov, P. Uncovering the Role of Chemical and Electronic Structures in Plasmonic Catalysis: The Case of Homolysis of Alkoxyamines. <i>ACS Catalysis</i> 2023, 13 (5), 2822-2833. DOI: 10.1021/acscatal.2c04685.</p> <p>(5) Kogolev, D.; Semyonov, O.; Metalnikova, N.; Fatkullin, M.; Rodriguez, R. D.; Slepicka, P.; Yamauchi, Y.; Guselnikova, O.; Boukherroub, R.; Postnikov, P. S. Waste PET upcycling to conductive carbon-based composite through laser-assisted carbonization of UiO-66. <i>J. Mater. Chem. A</i> 2023, 11 (3), 1108-1115, 10.1039/D2TA08127J. DOI: 10.1039/D2TA08127J.</p>
	<p>Results of intellectual activity <i>More than 10 patents of Russian Federation</i></p>