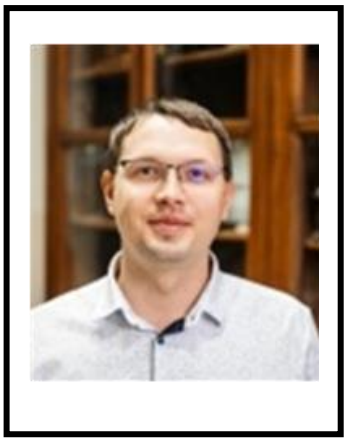
Researcher profile (portfolio) form for potential research supervisors of postgraduate track participants in the Global Universities Association International Olympiad for graduate and postgraduate applicants

University	Tomsk Polytechnic University
Level of English proficiency	Intermediate
Educational program and field of the educational program for which the applicant will be accepted	Condensed matter physics
List of research projects of the potential supervisor (participation/leadership)	Russian Science Foundation RSF № 23-19-00109 "Development of scientific and technical bases for obtaining metal-ceramic laminated composites Me/MAX from pre-ceramic papers and refractory metals with controlled structure and properties" Supervisor of the project of Govermental Program "Science", № FSWW-2024-0001 dated 15.02.2024 "Development of advanced materials and control technologies for components of hydrogen energy systems"
List of the topics offered for the prospective scientific research	1. Fabrication of 2D MXene materials for hydrogen production, storage and purification 2. Development of high-temperature laminated composite materials from preceramic papers and refractory metal foils for advanced structural application 3. Fabrication of preceramic papers for advanced high-temperature ceramic materials 4. Development of high-entropy alloys for hydrogen storage and purification 5. Synthesis of complex MAX-phase precursors for 2D MXene production
 Research supervisor: Egor Kashkarov, PhD (Tomsk Polytechnic University)	Engineering and Technology, 2.05. Materials Technology, Materials Science - Interdisciplinary
	Supervisor's research interests *Ceramics, layered structures, MAX-phases, MXenes, spark plasma sintering, preceramic paper, mechanical properties, protective coatings, high temperature corrosion, ion irradiation, magnetron sputtering, high-entropy alloys*
	Research highlights *(при наличии)* - *Working on unique equipment* - *Design of new materials* - *Collaboration with foreign researchers from China, Belarus, Germany* - *Additional financial support (involving in Grant supported projects)*
	Supervisor's specific requirements: basic knowledge of natural sciences; knowledge of Russian and/or English; daily visits to classes and laboratories; presentations at scientific conferences and seminars.
	Supervisor's main publications

	1. Kashkarov, E.B., Krotkevich, D.G., Mingazova, Y.R., Pushilina, N.S., Syrtanov, M.S., Lider, A.M., Travitzky, N. Functionally graded laminated composites fabricated from MAX-phase filled preceramic papers: Microstructure, mechanical properties and oxidation resistance (2022) Journal of the European Ceramic Society, 42 (5), pp. 2062-2072. 2. Li, K., Kashkarov, E., Ma, H. et al. Irradiation resistance of preceramic paper-derived SiCf/SiC laminated composites (2022) Journal of Materials Science, 57(22), pp. 10153–10166. 3. Kashkarov, E.B., Sidelev, D.V., Pushilina, N.S. et al. Influence of coating parameters on oxidation behavior of Cr-coated zirconium alloy for accident tolerant fuel claddings (2022) Corrosion Science, 203, 110359. 4. Krotkevich, D.G., Kashkarov, E.B., Syrtanov, M.S., Murashkina, T.L., Lider, A.M., Schmiedeke, S., Travitzky, N. Preceramic paper-derived Ti3Al(Si)C2-based composites obtained by spark plasma sintering (2021) Ceramics International, 47 (9), pp. 12221-12227. 5. Kashkarov, E.B., Pushilina, N.S., Syrtanov, M.S., Krotkevich, D.G., Gotman, I., Travitzky, N. Preceramic paper-derived SiCf/Ti3Al(Si)C2 and SiCf/Ti3SiC2 MAX-phase based laminates fabricated using spark plasma sintering (2021) Scripta Materialia, 194, статья № 113696. 6. Li, K., Kashkarov, E., Ma, H., Fan, P., Zhang, Q., Zhang, P., Zhang, J., Wu, Z., Wahl, L., Laptev, R., Lider, A., Travitzky, N., Yuan, D. Microstructural analysis of novel preceramic paper-derived sicf/sic composites (2021) Materials, 14 (22), статья № 6737. 7. Lyu, J., Kashkarov, E.B., Travitzky, N., Syrtanov, M.S., Lider, A.M. Sintering of MAX-phase materials by spark plasma and other methods (2021) Journal of Materials Science, 2021, 56(3) 1980–2015. 8. Kashkarov, E.B., Syrtanov, M.S., Sedanova, E.P., Ivashutenko, A.S., Lider, A.M., Travitzky, N. Fabrication of Paper-Derived Ti3SiC2-Based Materials by Spark Plasma Sintering (2020) Advanced Engineering Materials, 22(6), 2000136. 9. Li, K., Kashkarov, E., Syrtanov, M., Sedanova, E., Ivashutenko, A., Lider, A., Fan, P., Yuan, D., Travitzky, N. Preceramic paper-derived SiCf/SiCp composites obtained by spark plasma sintering: Processing, microstructure and mechanical properties (2020) Materials, 13 (3), статья № 607. DOI: 10.3390/ma13030607. 10. Kashkarov, E.B., Sidelev, D.V., Syrtanov, M.S., Tang, C., Steinbrück, M. Oxidation kinetics of Cr-coated zirconium alloy: Effect of coating thickness and microstructure (2020) Corrosion Science, 175, статья № 108883.