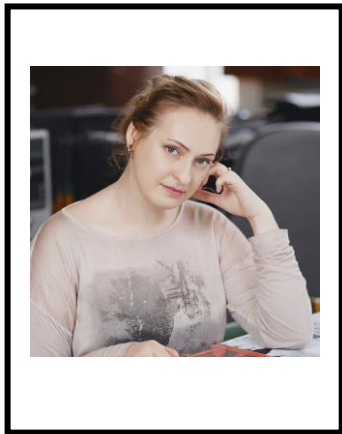


Структура научного профиля (портфолио) потенциальных научных руководителей участников трека аспирантуры Международной олимпиады Ассоциации «Глобальные университеты» для абитуриентов магистратуры и аспирантуры.

University	Tomsk Polytechnic University
English language proficiency	C1- advanced
Educational program and field of the educational program for which the applicant will be accepted	1.3.8. Condensed matter physics (physical sciences) 1.4.4. Physical chemistry (chemical sciences) 2.2.12. Devices, systems and products for medical purposes (2.2 Electronics, photonics, instrumentation and communications) 2.6.6. Nanotechnology and nanomaterials (Chemical technology, materials science, metallurgy) 2.6.14. Technology of silicate and refractory non-metallic materials (Chemical technology, materials science, metallurgy)
List of research projects of a potential research supervisor (participation/leadership)	Principal Investigator: 1. Russian Science Foundation. Project: Additive manufacturing of metal and polymer scaffolds and Deposition of Biocompatible films on the surfaces for the medical application 2. Bilateral project Russian Science Foundation – DFG (Germany). Project: Low-modulus titanium-based alloys prepared via additive manufacturing and surface modification. Participation: Russian Science Foundation. Project “Preparation and study of hybrid biodegradable piezoelectric scaffolds with magnetic properties (project number 22-13-20043)
List of possible research topics	1. Modeling of the mechanical properties of the scaffolds and alloys fabricated by additive manufacturing 2. Deposition and investigation of the biocompatible films on the different surfaces <hr/> 3. Multifunctional composites based on biodegradable and photosensitive polymers and nanoparticles
 <p>Research supervisor: Maria A. Surmeneva, Candidate of Science (TPU), senior researcher</p>	Title (indicate the relevant research subject area as per the Global Map of Science) Natural and exact sciences 1.03. Physics and Astronomy, Physics - interdisciplinary
	Supervisor’s research interests (detailed description of research interests): Biomaterial Science, Coating deposition, Materials characterization, Biomaterial Engineering, Biomaterial Functionalization, Additive manufacturing, PECVD
	Research highlights (if applicable): <i>The use of advanced equipment, interaction with Russian and foreign scientists and research centers, financial support for graduate students.</i>
	Supervisor’s specific requirements: English knowledge (other languages are welcome as well), Q1/Q2 papers, motivation to make an impact in the field, team-working
	H-index 40 (Scopus), and 38 (WoS). 164 papers (Scopus). Supervisor’s main publications: <ul style="list-style-type: none"> • Shlapakova, Lada E., et al. "Revealing an important role of piezoelectric polymers in nervous-tissue regeneration: a

	<p>review." <i>Materials Today Bio</i> (2024): 100950. Grubova, Irina Yu, et al. "Process window for electron beam melting of Ti–42Nb wt.%" <i>Journal of Materials Research and Technology</i> 25 (2023): 4457-4478.</p> <ul style="list-style-type: none"> • Khrapov, D., et al. "The impact of post manufacturing treatment of functionally graded Ti6Al4V scaffolds on their surface morphology and mechanical strength." <i>Journal of Materials Research and Technology</i> 9.2 (2020): 1866-1881. • Chernozem, Roman V., et al. "Comprehensive characterization of titania nanotubes fabricated on Ti–Nb alloys: surface topography, structure, physicomechanical behavior, and a cell culture assay." <i>ACS Biomaterials Science & Engineering</i> 6.3 (2020): 1487-1499. • Surmeneva, Maria, et al. "Decreased bacterial colonization of additively manufactured Ti6Al4V metallic scaffolds with immobilized silver and calcium phosphate nanoparticles." <i>Applied Surface Science</i> 480 (2019): 822-829.
	<p>Results of intellectual activity: 3 patents of Russian Federation for inventions and 1 for utility model.</p>