На английском языке:

University	National Research Tomsk Polytechnic University
Level of English 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 the potential supervisor (participation/leadership)	**Participation**: - Russian Science Foundation. Project "Research on ways to improve the piezoelectric properties of biomaterials based on polyoxyalkanoates for controlled effects on living cells and tissues" (project number No. 20-63-47096) - Megagrant. Project "Piezo- and magnetoelectric biocompatible materials for solving problems of modern biology and medicine", agreement number 075-15-2021-588 dated 06/1/2021. - Russian Science Foundation. Project "Development of new additively synthesized alloys with controlled Young's modulus and nanostructured bioactive coating for replacing bone defects" (project number 22-43-04430) **Principal Investigator**: - Russian Science Foundation. Project "Preparation and study of hybrid biodegradable piezoelectric scaffolds with magnetic properties (project number 22-13-20043)
List of the topics offered for the prospective scientific research	1. Magnetoelectric materials in the form of nanoparticles with a core-shell structure or electrospun scaffolds. 2. Additive methods for producing piezopolymer scaffolds and implants for tissue engineering. 3. Two-dimensional materials based on twisted fibers for smart clothing, flexible electronics 4. Smart clothing based on twisted and coiled polymer fibers. 5. Micromotors with increased stored energy for flexible robotics and electronics. 6. Energy generation and storage systems based on twisted composite carbon-containing polymer fibers. 7. Artificial muscles based on polymer or carbon-containing materials. 8. Smart implants based on piezopolymer materials.
 Surmenev Roman Anatolievich, Doctor of Technical Sciences (Institute of Physics of Strength and	Natural and exact sciences 1.03. Physics and Astronomy, Condensed Matter Physics **Supervisor's research interests**: *Smart materials, ferroelectrics, piezoelectric materials, magnetoelectric materials, implants, tissue engineering, surface modification, scaffolds, flexible electronics, metamaterials.* **Research highlights**: *The use of advanced equipment, interaction with Russian and foreign scientists and research centers, financial support for graduate students.* **Supervisor's specific requirements**: *Fluency in English, Q1/Q2 publications, motivation for results, ability to work in an interdisciplinary team, creative approach.* **Supervisor's main publications**. Author and co-author of more than 180 publications indexed in Scopus. H-index 40 (Scopus), 38 (Web of Science). 1 R.A. Surmenev, M.A. Surmeneva. The influence of the flexoelectric effect on materials properties with the emphasis on

Materials Science SB RAS, Tomsk), professor.	photovoltaic and related applications: a review, Materials Today, Volume 67, July–August 2023, Pages 256-298, https://doi.org/10.1016/j.mtcomm.2023.106410 2 S. Kopyl, R. Surmenev, M. Surmeneva, Y. Fetisov, A. Kholkin, Magnetoelectric effect: principles and applications in biology and medicine – A review, Materials Today Bio 2021, 100149, doi.org/10.1016/j.mtbio.2021.100149 3 R.A. Surmenev, R.V. Chernozem, I.O. Pariy, M.A. Surmeneva, A review on piezo- and pyroelectric responses of flexible nano- and micropatterned polymer surfaces for biomedical sensing and energy harvesting applications, Nano Energy 79 (2021) 105442, https://doi.org/10.1016/j.nanoen.2020.105442 *4* R.V. Chernozem, I. Pariy, M.A. Surmeneva, V.V. Shvartsman, G. Plankaert, J. Verduijn, S. Ghysels, A. Abalymov, B.V. Parakhonskiy, A. Gonçalves, S. Mathur, F. Ronsse, D. Depla, D.C. Lupascu, D. Elewaut, R.A. Surmenev, A.G. Skirtach, Cell behavior changes and enzymatic biodegradation of hybrid electrospun poly(3-hydroxybutyrate)-based scaffolds with an enhanced piezoresponse after the addition of reduced graphene oxide, Adv. Healthcare Mater. 2022, 2201726, https://doi.org/10.1002/adhm.202201726 *5* L.E. Shlapakova, M.A. Surmeneva, A.L. Kholkin, R.A. Surmenev, Revealing an important role of piezoelectric polymers in nervous-tissue regeneration: a review, Materials Today Bio, Volume 25, April 2024, 100950, https://doi.org/10.1016/j.mtbio.2024.100950
	Results of intellectual activity: 3 Russian Federation patents for invention and 1 for utility model.