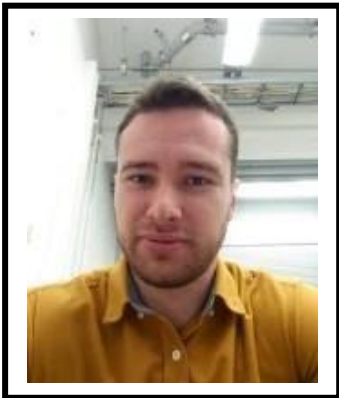


Portfolio of potential scientific advisors of participants of the international Olympiad Open Doors: Russian Scholarship Project of the Association "Global Universities" on the track of postgraduate studies in 2022-2023.

The university	<i>Novosibirsk State University (NSU)</i>
English proficiency	<i>Fluent</i>
The direction of training, on which will be accepted a graduate student	<i>Devices and methods of experimental physics</i>
The code of the direction of training, for which a graduate student will be accepted	<i>03.06.01 Physics and Astronomy</i>
List of research projects of a potential supervisor (participation / leadership)	<i>Project Leader "Study of the structure and properties of functional materials for the development of devices for operating with Big Data" (State task of the Ministry of Education and Science of the Russian Federation #FSUS-2020-0029 for R&D No. AAAA-A20-120032590048-4)</i>
List of possible research topics	<ol style="list-style-type: none"> <i>1) Investigation of the relationship between physical properties and growth technologies in the production of AlN films for use in micro-resonators for information transmission systems.</i> <i>2) Investigation of the composition, structure, morphology and electrical characteristics of the electride of the composition type C12A7 for novel memory elements.</i> <i>3) Development of methods for two-pass scanning probe microscopy in the study of the electrical characteristics of piezoelectric nanomaterials.</i>
 <p>Research supervisor: Pavel Geydt, Doctor of Science (Technology), Lappeenranta University of Technology, Lappeenranta, Finland, 2018</p>	<i>Experimental research in materials science in the area of data storage and data transfer</i>
	<p>Supervisor's research interests:</p> <p><u><i>Atomic force microscopy (including advanced manipulation)</i></u> <u><i>Semiconductor nanowires (1-Dimensional nanostructures)</i></u></p> <p><u><i>Thin layers of AlN (2-Dimensional nanostructures)</i></u></p> <p><u><i>Electride ceramics (C12A7 family material in 1D-2D form)</i></u></p> <p>Research highlights:</p> <p><u><i>Full pack of experimental physics equipment: TEMs, SEMs, AFMs, STMs, electron lithography, X-ray, SAXS, THz/IR/Vis/UV-spectrometers, sample preparation, powerful workstation for modeling etc.</i></u></p> <p><u><i>Arranging communication with experts in research, application and manufacturing of nanoelectronics</i></u></p> <p><u><i>Young team of specialists in physics and chemistry</i></u></p>

Strong support opportunity to realize your scientific ideas

Supervisor's specific requirements:

- *Major in Solid-state physics, Semiconductor physics, Radio physics, Photonics, or nearby area of Inorganic chemistry*
- *Strong technical skills in instrumental measurements/operation*
- *Medium skills in computer modelling (ComSol, Silvaco, Lumerical are preferred)*
- *Basic knowledge in software programming (C++, Python, Delphi or Java)*
- *Curiosity and readiness to self-directed learning in abovementioned areas of experimental and computational physics*

Supervisor's main publications:

Количество публикаций в Scopus за 2018-2022: 30 штук

- *Total publications in Scopus (2016-2020): 20 items*
- *1) Young's Modulus of Wurtzite and Zinc Blende InP Nanowires <https://doi.org/10.1021/acs.nanolett.7b00312>*
- *2) Influence of surface passivation on electric properties of individual GaAs nanowires studied by current–voltage AFM measurements <https://doi.org/10.3952/physics.v56i2.3305>*
- *3) Piezoelectric Current Generation in Wurtzite GaAs Nanowires <https://doi.org/10.1002/pssr.201700358>*
- *4) I–V curve hysteresis induced by gate-free charging of GaAs nanowires' surface oxide <https://doi.org/10.1063/1.5005125>*
- *5) GaAs Wurtzite Nanowires for Hybrid Piezoelectric Solar Cells <https://doi.org/10.1134/S1063782618050020>*