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| University | Peter the Great St.Petersburg Polytechnic University |
| Level of English proficiency | Advanced (C1) |
| Educational program and field of the educational program for which the applicant will be accepted | <u>EARTH & ENVIRONMENTAL SCIENCES FOR SUSTAINABILITY</u> 1.6.21. Geoecology (Technical sciences) <u>URBANISM & CIVIL ENGINEERING</u> 1.6.21. Geoecology (Technical sciences) |
| List of research projects of the potential supervisor (participation/leadership) | <ul style="list-style-type: none"> • Development of scientific foundations for the rational use and protection of water, air, land, biological, recreational, mineral and energy resources of the Earth • Geoecological analysis of the impact of river flow regulation on aquatic, coastal-aquatic and terrestrial ecosystems and justification of ways to preserve and restore aquatic and terrestrial ecosystems • Geoecological aspects of water management. Study of the impact of hydraulic engineering on changes in the state of aquatic and terrestrial ecosystems • Development of technologies for the disposal of production and consumption waste in a circular economy |
| List of the topics offered for the prospective scientific research | <ul style="list-style-type: none"> • Development of scientific and methodological foundations for the environmental justification of the choice of a site for the construction of reservoirs and reducing their negative impact on aquatic ecosystems • Development of scientific foundations and methods of flood protection in adjacent river basins based on modeling the operating modes of a distributed multi-stage system of intercepting hydroelectric systems • Geoecological justification for the safe placement, storage and disposal of toxic, radioactive and other wastes • Investigation of the processes of converting organic-containing waste into high-quality fuel – hydrogen • Development of environmentally friendly technology for processing polymer waste to obtain secondary energy resources • Laboratory research and development of technology for obtaining composite fuel from production and consumption waste for the purpose of energy saving • Studies of the processes of cogeneration of biogas and biochar from agricultural waste. |
|  | <i>1.05. Earth and related environmental sciences</i> |
| | Supervisor's research interests Assessment of the impact of economic activity on the environment. Resource conservation, remediation and reclamation of lands, disposal of production and consumption waste, including those arising from the extraction, enrichment and processing of minerals, construction, economic activities and operation of housing and communal services. |
| | Supervisor's specific requirements: <ul style="list-style-type: none"> • Mathematical background in mathematics, neuro-informatics, programming. |

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| <p>Research supervisor: Aleksandr N. Chusov PhD, Associate Professor Higher School of Hydraulic Engineering and Power Engineering Institute of Civil Engineering</p> <p>Scientific supervisor of the educational program – Environmental Engineering in Urban Construction</p> | <ul style="list-style-type: none"> • Ability of software engineering in Java <p>Supervisor's main publications</p> <ul style="list-style-type: none"> • Pan, C., Fu, X., Lu, W., Ye, R., Guo, H., Wang, H., Chusov, A. <i>Effects of conductive carbon materials on dry anaerobic digestion of sewage sludge: Process and mechanism. Journal of Hazardous Materials</i>, 2020, 384, 121339. https://doi.org/10.1016/j.jhazmat.2019.121339 Q1 (2020), SJR 2018: 1.958 • Fedorov, M., Badenko, V., Chusov, A., Maslikov, V. <i>GIS technologies for selecting location of dams in the flood control systems. E3S Web of Conferences</i>, 2019, 91, 07001. https://doi.org/10.1051/e3sconf/20199107001 SJR 2018: 0.174 • Chusov, A., Maslikov, V., Molodtsov, D., Manukhina, O. <i>Determination of Environmental Impact Factors of Flood Control Hydrosystems with Temporarily Filled Self-regulating Reservoirs. Advances in Intelligent Systems and Computing</i>, 2018, 692, pp. 1046-1054. https://doi.org/10.1007/978-3-319-70987-1_113 Q3 (2018), SJR 2018: 0.174 • Vasil'ev, Y.S., Maslikov, V.I., Shilin, M.B., Chusov A.N., Eremina, T.R., Ershova, A.A. <i>New Challenges and Possibilities of Hydroelectric Power Plants in Combating Pollution of Watercourses by Floating Debris. Power Technology and Engineering</i>, 2019, 53(3), c. 314-318. Q3, ISSN1570145X, DOI 10.1007/s10749-019-01077-x • Smyatskaya, Yu.A., Fazullina, A.A., Politaeva, N.A., Chusov, A.N., Bezborodov, A.A. <i>Wastewater treatment of iron(III) ions with residual biomass of microalgae Chlorella sorokiniana. Ecology and Industry of Russia</i>, 2019, 23(6), c. 22-27. Q2, ISSN 18160395, DOI 10.18412/1816-0395-2019-6-22-27 • Fedorov, M.P., Maslikov, V.I., Badenko, V.L., Chusov, A.N., Molodtsov, D.V. <i>A Method for Systematic Design of Protection Against Flooding in a River Basin. Power Technology and Engineering</i>, 2019, 53(3), c. 319-323. Q3, ISSN 1570145X DOI 10.1007/s10749-019-01078-w • Zhazhkov, V.V., Chusov, A.N., Politaeva, N.A. <i>Research and assessment of biogas composition at the MSW running and recommendations for its use. 2021, Ecology and Industry of Russia</i>, 25(5), c. 4-9. Q2, ISSN 18160395 DOI 10.18412/1816-0395-2021-5-4-9. • Ventsyulis, L.S., Pimenov, A.N., Chusov, A.N., Shibanova, T.V. <i>Comparative analysis of the environmental efficiency of waste management systems in St. Petersburg and Finland, Ecology and Industry of Russia</i>, 2021, 25(7), c. 60-64. Q2, ISSN18160395, DOI 10.18412/1816-0395-2021-7-60-64 • Chen C., Tian B., Jiang W., Zhou Y., Zhang C., Schwarz C., Wu W., Garg R., Garg P., Aleksandr C., Mikhail S. <i>MAPPING THREE-DIMENSIONAL MORPHOLOGICAL CHARACTERISTICS OF TIDAL SALT-MARSH CHANNELS USING UAV STRUCTURE-FROM-MOTION PHOTOGRAMMETRY,</i> |
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Q1 (2022) Geomorphology. 2022. T. 407. C. 108235. DOI: 10.1016/j.geomorph.2022.108235

- *Chusov, A., Maslikov, V., Badenko, V., Zhazhkov, V., Molodtsov, D., Pavlushkina, Y. Biogas potential assessment of the composite mixture from duckweed biomass Q1 (2022) Sustainability (Switzerland), 14 (1), статья № 351 DOI: 10.3390/su14010351*

- *Fedorov M., Maslikov V., Korablev V., Chusov A., Molodtsov D. Production of Biohydrogen from Organ-Containing Waste for Use in Fuel Cells, Q1 (2022) Energies (Switzerland), 15(21). 8019*

Results of intellectual activity

- Mikheev P.Yu., Chusov A.N., Politaeva N.A. Database on enlarged indicators of pollutant emissions in the production of elements of wind power plants and wind power plants. SPbPU. Certificate of state registration of database No. 2023621868. Date of state registration in the database register: 07.06.2023.

- Chechevichkin A.V., Chechevichkin V.N., Maslikov V.I., Chusov A.N., Politaeva N.A. Device for cryogenic extraction of carbon dioxide from a biogas stream. Utility model patent No. 217503 dated 04.04.2023.

- Davydov R.V., Maslikov V.I., Molodtsov D.V., Chusov A.N. Program for modeling the operating modes of flood control systems distributed in the catchment. SPbPU. Certificate of state registration of computer program No. 2019610436. Date of state registration in the register of computer programs: January 10, 2019.

- Andrianova M.Yu., Vedmetsky Yu.V., Kudoyarov M.F., Molodkina L.M., Patrova M.Ya., Fedorov M.P., Chusov A.N. Complex of purification of toxic oily liquid waste. Utility model patent No. 126699 dated 10.04.2013.

- Patrova M.Ya., Kudoyarov M.F., Vedmetsky Yu.V., Molodkina L.M., Chusov A.N. Membrane apparatus. Utility model patent No. 133754 dated 27.10.2013.

- Ulin V.P., Soldatenkov F.Yu., Bobyl A.V., Konnikov S.G., Tereshchenko G.F., Fedorov M.P., Chusov A.N. Method of manufacturing a gas-permeable membrane. Patent for invention No. 2365403 dated 27.08.2009.

- Ulin V.P., Soldatenkov F.Yu., Baryshev S.V., Bobyl A.V., Gromova O.B., Tereshchenko G.F., Fedorov M.P., Chusov A.N. Gas-permeable membrane module. Utility model patent No. 82578 dated 10.05.2009.