

# Alina Rozenblit

alina.rozenblit@metalab.ifmo.ru

---

## Education

- 2022 - PRESENT    **Degree:** PhD in Radiophysics  
                          **Organization:** ITMO University
- 2020 - 2022        **Degree:** Master in Radiofrequency Systems and Devices  
                          **Organization:** ITMO University
- 2016 - 2020        **Degree:** Bachelor in Medical and Bioengineering Physics  
                          **Organization:** Peter the Great St. Petersburg Polytechnic University

## Research

- 2022 - PRESENT    **Project:** Topological edge states in square lattices  
                          **Organization:** ITMO University  
                          **Advisor:** Nikita Olekhno
- 2020 - 2022        **Project:** Topological edge states in electrical circuits  
                          **Organization:** ITMO University  
                          **Advisor:** Maxim Gorlach, Nikita Olekhno
- 2018 - 2020        **Project:** Investigation of fibroblast actin cytoskeleton changes under  
  the influence of colchicine by atomic force and confocal laser  
  scanning microscopy methods  
                          **Organization:** Pavlov Institute of Physiology  
                          **Advisor:** Valentina Penniyaynen

## Publications

1. N. Olekhno, [A. Rozenblit](#), A. Dmitriev, D. Bobylev, M. Gorlach. Topological transitions driven by quantum statistics and their electrical circuit emulation // Physical Review B - 2022, Vol. 105, No. 20, pp. 205113 DOI: [10.1103/PhysRevB.105.205113](#)
2. N. Olekhno, [A. Rozenblit](#), V. Kachin, A. Dmitriev, O. Burmistrov, P. Seregin, D. Zhirihin, M. Gorlach. Experimental realization of topological corner states in long-range-coupled electrical circuits // Physical Review B - 2022, Vol. 105, No. 8, pp. L081107 DOI: [10.1103/PhysRevB.105.L081107](#)

3. [A. Rozenblit](#), N. Olekhno, A. Dmitriev, P. Seregin, and M. Gorlach. Topological edge states of anyon pairs emulated in electric circuits, *Journal of Physics: Conference series*, *Journal of Physics: Conference Series* - 2021, Vol. 2015, pp. 012127 (2021). DOI: <https://doi.org/10.1088/1742-6596/2015/1/012127>
4. N. Olekhno, [A. Rozenblit](#), V. Kachin, O. Burmistrov, A. Dmitriev, P. Seregin, D. Zhirihin, and M. Gorlach. Higher-Order Topological States in the Extended Two-Dimensional SSH Model and Their Electric Circuit Implementation. *OSA Technical Digest* - 2021, pp. FTu1M.5 (2021).
5. M. Buzakov, V. Smirnov, D. Sennikova, A. Molodtsova, [A. Rozenblit](#), V. Porvatov, O. Burmistrov, E. Puhtina, A. Dmitriev, N. Olekhno. Crystallization of robotic swarms in a parabolic potential. *St.Petersburg State Polytechnical University Journal. Physics and Mathematics* - 2023, Vol. 16, No. S3.1, pp. 36-40
6. A. Dmitriev, [A. Rozenblit](#), V. Porvatov, A. Molodtsova, E. Puhtina, O. Burmistrov, D. Filonov, A. Souslov, N. Olekhno. Statistical Correlations in Active Matter Based on Robotic Swarms. *International Conference Engineering and Telecommunication (EnT)* - 2021, pp. 1-3 (2021). DOI: [10.1109/EnT50460.2021.9681775](https://doi.org/10.1109/EnT50460.2021.9681775)
7. V. Porvatov, [A. Rozenblit](#), A. Dmitriev, O. Burmistrov, D. Petrova, G. Gritsenko, E. Puhtina, E. Kretov, D. Filonov, A. Souslov, N. Olekhno. Optimizing self-rotating bristle-bots for active matter implementation with robotic swarms *Journal of Physics: Conference Series* - 2021, Vol. 2086, No. 1, pp. 012202 (2021). DOI: [10.1088/1742-6596/2086/1/012202](https://doi.org/10.1088/1742-6596/2086/1/012202)
8. [A. Rozenblit](#), V. Porvatov, D. Petrova, I. Khakhalin, K. Kotlyar, G. Gritsenko, A. Evreiskaya, M. Lebedeva, E. Kretov, D. Filonov, A. Souslov, and N. Olekhno. Diffusive dynamics and jamming in ensembles of robots with variable friction, *Journal of Physics: Conference Series* - 2020, Vol. 1695, No. 1, pp. 012201 (2020). DOI: [10.1088/1742-6596/1695/1/012201](https://doi.org/10.1088/1742-6596/1695/1/012201)
9. N. Olekhno, [A. Rozenblit](#), P. Seregin, and M. Gorlach, Statistics induced topological states of interacting anyons, *AIP Conference Proceedings (METANANO-2020)* 2300, 020093 (2020). DOI: [10.1063/5.0031727](https://doi.org/10.1063/5.0031727)
10. M. Khalisov, V. Penniyaynen, S. Podzorova, K. Timoshchuk, [A. Rozenblit](#), and B. Krylov. The effect of colchicines on the structure of the fibroblast cytoskeleton: A quantitative study of an adaptive cell response by means of atomic force and confocal laser scanning microscopy methods. *Integrative Physiology*, vol. 1, no. 2, pp. 115–122 (2020). DOI: [10.33910/2687-1270-2020-1-2-115-122](https://doi.org/10.33910/2687-1270-2020-1-2-115-122)

## Conference presentations

1. A. Rozenblit, *et al.* Edge states supported by two-dimensional square-lattice arrays of bianisotropic dielectric resonators, Saint Petersburg OPEN, 14-17.05.2024, Saint Petersburg, poster presentation
2. A. Rozenblit, *et al.* Local phase transitions in robotic swarm, XII Young Scientists Congress, 03.04 - 06.04.2023, Saint Petersburg, oral presentation
3. A. Rozenblit, *et al.* Study of topological edge states localized in the corners of an electric circuit, Technology and methods of Keysight pathwave design for projects and teaching 2022, Tomsk, Russia, 3.02-4.02.2022, oral presentation
4. A. Rozenblit, *et al.* Topological edge states of anyon pairs emulated in electrical circuits, METANANO 2021, Saint Petersburg, 13.09-17.09.2021, poster presentation
5. A. Rozenblit, *et al.* Two-particle topological states induced by quantum statistics and their electric circuit emulation, 8th International School and Conference "Saint Petersburg OPEN-2021", Saint Petersburg, 25.05-28.05.2021, poster presentation
6. A. Rozenblit, *et al.* Higher-order topological states in extended two-dimensional Su-Schrieffer-Heeger model, The XXII Russian Youth Conference on Physics of Semiconductors and Nanostructures, Opto- and Nanoelectronics, Saint Petersburg, 23-27.11.2020, poster presentation
7. A. Rozenblit, *et al.* Diffusion dynamics in ensembles of robots with variable friction, 7th International School and Conference "Saint Petersburg OPEN-2020", Saint Petersburg, 27.04-30.04.2020, poster presentation
8. A. Rozenblit, *et al.* Dynamics of active matter, Alferov's Winter School, Saint Petersburg, 27.01-1.02.2020, oral presentation

## Awards

1. The best student presentation, Technology and methods of Keysight pathwave design for projects and teaching 2022
2. Diploma for the best presentation, V International Scientific Paper Contest "Digital Science", 2020
3. Diploma for the best paper, V International Scientific Paper Contest "Digital Science", 2020

## Scholarships and Grants

1. Grant "Research project of master and PhD students of School of Physics and Engineering at ITMO University" (2022)
2. IEEE MTT-S Undergraduate Scholarship 2021 Cycle 2 (2021)
3. Presidential Scholarship (2021-2022)
4. Vladimir Potanin Fund Scholarship Programme (2021-2022)
5. Special Scholarship of ITMO University for Research Achievements (2021, 2022)