Ilya Volkov

Curriculum Vitae

Faculty of Physics, ITMO University
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Education

2021–present **PhD, Optics**, *ITMO University, Saint-Petersburg, Russia*, Thesis title: "Multi-photon states in two-dimensional quantum systems".

2019–2021 **Master, Nanophotonics metamaterials**, *ITMO University, Saint-Petersburg, Russia*, Thesis title: "Slow-light enhanced unidirectional coupling of a circularly polarized quantum emitter to a nanostructured optical waveguide".

2008–2012 **Bachelor, Solid-state physics**, *Peter the Great Saint-Petersburg Polytechnic University, Russia*, Thesis title: "Charge memory effect in a GaAs/AlGaAs double quantum well with a deposited quartz layer".

Publications

Journal Articles

2024 Ilya A. Volkov, Nikita A. Ustimenko, Danil F. Kornovan, Alexandra S. Sheremet, Roman S. Savelev, and Mihail I. Petrov. Strongly subradiant states in planar atomic arrays. *Nanophotonics*, volume 13, pages 289–298. De Gruyter, 2024.

2024 Ilya Volkov, Stanislav Mitsai, Stepan Zhogolev, Danil Kornovan, Alexandra Sheremet, Roman Savelev, and Mihail Petrov. Non-radiative configurations of a few quantum emitters ensembles: Evolutionary optimization approach. *Appl. Phys. Lett.*, volume 124. AIP Publishing, 2024.

2023 Nikita Ustimenko, Danil Kornovan, Ilya Volkov, Alexandra Sheremet, Roman Savelev, and Mihail Petrov. Non-radiant multiphoton states in quantum ring oligomers. *arXiv*, 2023.

2021 Ilya A. Volkov and Roman S. Savelev. Unidirectional coupling of a quantum emitter to a subwavelength grating waveguide with an engineered stationary inflection point. *Phys. Rev. B*, volume 104, page 245408. American Physical Society, 2021.

2019 O. N. Sergaeva, V. V. Yaroshenko, I. A. Volkov, D. A. Zuev, and R. S. Savelev. Increase of the Zero-Phonon-Line Emission from Color Centers in Nanodiamonds by Coupling with Dielectric Nanocavity. *Semiconductors*, volume 53, pages 1942–1945. Pleiades Publishing, 2019.

2019 O. N. Sergaeva, I. A. Volkov, and R. S. Savelev. Resonant dielectric waveguide-based nanostructure for efficient interaction with color centers in nanodiamonds. *Nanosystems: Physics, Chemistry, Mathematics*, volume 10, 2019.

Conference Proceedings

2024 I. A. Volkov, S. A. Mitsai, S. K. Zhogolev, D. F. Kornovan, A. S. Sheremet, R. S. Savelev, and M. I. Petrov. Evolutionary Optimization of Radiative Losses in Low-dimensional Systems of Dipole Emitters. In *2024 Photonics & Electromagnetics Research Symposium (PIERS)*, pages 21–25. IEEE, 2024.

2020 Sergaeva O.N. Dielectric nanocavity for the emission control of a single-photon source. *SPIE Photonics Europe ISSUE Nanophotonics VIII*, volume 11345, 2020.

Talks

2024 **RENEW**. High-q collective states in atomic metasurfaces. *8-12 July 2024 Moscow, Russia*, 2024.

2024 **PIERS**. Evolutionary optimization of radiative losses in low-dimensional systems of dipole emitters. *21-25 April 2024 Chengdu, China*, 2024.

2024 **NANOLIGHT**. Strongly subradiant collective states in planar structures of quantum emitters. *25 February-02 March 2024 Benasque, Spain*, 2024.

2023 **METANANO SUMMER SCHOOL ON NANOPHOTONICS AND ADVANCED MATERIALS**. Strongly subradiant single-photon modes in square arrays of quantum emitters. *16-18 August 2023 Qingdao, China*, 2023.

2023 **HORIZONS FOR NANOPHOTONICS**. Long-lived collective states in planar arrays of quantum emitters. *26-27 December 2023 Dolgoprudny, Russia*, 2023.

2022 **YENISEY PHOTONICS**. Enhancement of unidirectional interaction of a circularly polarized quantum source with a structured optical waveguide. *19-24 September 2022 Krasnoyarsk, Russia*, 2022.

2021 **METANANO**. Dielectric nanocavity for the emission control of a single-photon source. *15-19 July 2021 Saint Petersburg, Russia*, 2021.

Awards

2024-2025 Russian Presidential **Scholarship** for the study of multiphoton states in two-dimensional arrays of atoms

2021,2023 **Grant** for students of universities located in St. Petersburg, held by the Committee on Science and Higher Education of the Government of St. Petersburg

2022-2023 Schoolchildren Annual Practise project "Long-lived quantum excitations in one-dimensional and two-dimensional systems" was supported by **Sirius.Leto** program

Computer skills

Modelling CST Studio, COMSOL Multiphysics, Matlab

Teaching Activities

2022 Physics course for bachelors, teaching assistant

2022 Scientific advisor for schoolchildren in Summer Practise project

2022-2023 Scientific advisor for schoolchildren in Annual Practise project

2024 Quantum Optics course for master students, teaching assistant

Referees

Dr. Mihail Petrov
Assistant Professor
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Dr. Roman Savelev
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Dr. Alexandra Sheremet
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Dr. Danil Kornovan
Postdoc
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