



Daniil Ryabov

Master student in Nanophotonics

- July 30, 1999
- Saint-Petersburg, Russia
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Languages

- Russian (native) ●●●●●
- English (C1) ●●●●●
- German (B1) ●●●●●

Hard Skills

Numerical:

Matlab (analytical calculations, experimental signals processing) *Advanced*

Comsol (EM waves, eigenmodes, heat transfer) *Advanced*

Python (spectra analyses) *Beginner*

CST (EM waves, eigenmodes) *Beginner*

Maple (Analytical expressions analyses) *Beginner*

Visual:

LaTeX, Inkscape *Intermediate*

Experimental: DF-scattering, Raman scattering and thermometry, photoluminescence, hot-plate measurements, absorption spectra acquisition

Teaching: Mentor at ITMO University (practice classes in Optics for 2nd year bachelor students, 2022); bachelor students supervising for project contests (fall and spring semesters 2020-2021 academ. year) - 2nd place both; math and physics tutor (2019-2021)

Working Experience

- 1 Sep 2021 – now **Engineer** ITMO University
School of Physics, Prof. Sergey Makarov Group. Optical heating of all-dielectric nanostructures. Thermo-induced nonlinearities.
- 1 Sep 2019 – 31 Aug 2021 **Lab assistant** ITMO University
School of Physics, Prof. Sergey Makarov Group. Stimulated Raman scattering from resonant dielectric nanoparticles.

Education

- 1 Sep 2021 – now **M.Sc.prog. "Nanophotonics and Metamaterials"** ITMO University
Nonlinear optical heating of high-Q dielectric nanostructures.
Supervisor: Prof. Sergey Makarov
Co-supervisor: A/Prof. Mihail Petrov
Avg. sc.: **5.00**
Principle courses:
Theory of Waveguides and Optical Resonators
Mathematical Methods in Physics
Experimental Methods of Nanophotonics
Optics of Metal Nanostructures
Electrodynamics of Metamaterials
Methods of Computer Simulation
- 1 Sep 2017 – 31 June 2021 **B.Sc. in "Nanophotonics and Quantum Optics"** ITMO University
Raman scattering enhancement by resonant semiconductor nanocylinders.
Supervisor: Ph.D. George P. Zograf
Co-supervisor: Prof. Sergey Makarov
Avg. sc.: **4.95**
Principle courses:
Classical Field Theory
Electrodynamics of Continuous Media
Quantum Mechanics (2 sem.)
Physics of Condensed Matter (2 sem.)
Laser Physics
Nonlinear Photonics
Semiconductor Optics

Publications

- 2022 **Nonlinear optical heating of all-dielectric super-cavity: efficient light-to-heat conversion through giant thermorefractive bistability**
Ryabov, D., Pashina, O., Zograf, G., Makarov, S., Petrov, M.
Nanophotonics, 11(17), pp. 3981-3991
- Nanoscale Gallium Phosphide Epilayers on Sapphire for Low-Loss Visible Nanophotonics**
Fedorov, V., Koval, O., Ryabov, D., Fedina, S., Eliseev, I., Kirilenko, D., Pidgayko, D., Bogdanov, A., Zadiranov, Y., Goltaev, A., Ermolaev, G.
ACS Applied Nano Materials, 5(7), pp.8846-8858
- Single-Walled Carbon Nanotube Thin Film for Flexible and Highly Responsive Perovskite Photodetector**
Marunchenko, A., Baranov, M., Ushakova, E., Ryabov, D., Pushkarev, A., Gets, D., Nasibulin, A., Makarov, S.
Advanced Functional Materials, 32(12), p.2109834
- 2021 **Optical heating of doped semiconductor nanocylinders supporting quasi-BIC modes**
Ryabov, D., Pashina, O., Zograf, G., Makarov, S., Petrov, M.
J. of Ph: Conference Series, 2015(1), p. 012129, IOP Publishing
- Ultrafast laser heating of non-plasmonic nanocylinders**
Pashina, O., Ryabov, D., Zograf, G., Makarov, S., Petrov, M.
J. of Ph: Conference Series, 2015(1), p. 012104, IOP Publishing

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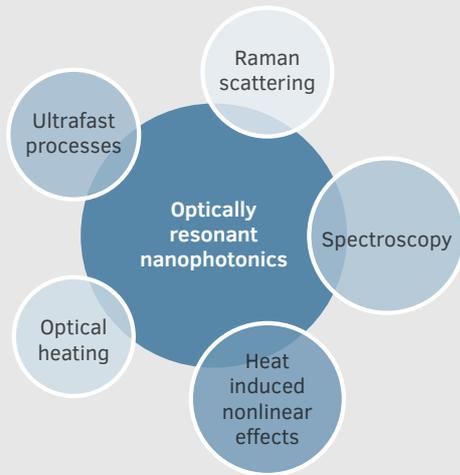
Master student in
Nanophotonics

Soft Skills

Organizer of master students initiation event (2020, 2022); volunteered as a technical assistant at METANANO'21

Completed courses: Negotiations, Influence and Conflict Management; Creative Technologies; Basics of Project Management

Research interests



Personal funding

Scholarship of The Russian President (2022 - 2023 academ. year)
Increased state academic scholarship for scientific achievements (fall 2020, spring 2022, fall 2022)
Winner (1st degree) of Physical Faculty Olympiad for the Master students Scholarship (2021)

2020

Stimulated Raman scattering from Mie-resonant subwavelength nanoparticles

Zograf, G., **Ryabov, D.**, Rutckaia, V., Voroshilov, P., Tonkaev, P., Permyakov, D., Kivshar, Yu., Makarov, S.
Nano Letters 20(8), p. 5786-5791

Conferences

2022

Thermo-optical bistability in single semiconductor super-cavity (poster)

International school on Plasmonics and Nano-Optics (3rd edition), Torino, Italy

Low-threshold Raman lasing from high-Q subwavelength nanoparticle (oral)

XI Young Scientists Congress, St.Petersburg, Russia

2021

Optical heating of doped semiconductor nanocylinders supporting quasi-BIC modes (oral)

VI International Conference on Metamaterials and Nanophotonics METANANO'21 (online)

2020

Stimulated Raman emission from subwavelength nanoparticle (oral)

V International Conference on Metamaterials and Nanophotonics METANANO'20 (online)