

DANIIL RYABOV

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WORK EXPERIENCE

The Department of Physics and Engineering
ITMO University, Saint-Petersburg, Russia
Position: Laboratory assistant

September 2019 - Ongoing

JOB-RELATED SCIENTIFIC SKILLS

Theoretical calculations and numerical simulations

I am highly experienced in simulating electromagnetic problems for experimental applications, in particular, optimization of high Q-factor nanoresonators configurations; dark-field scattering evaluation; coupling efficiency estimation for various types of polarizations; calculation of the nanostructures optical heating and some others.

Experimental tasks

I am working in the Optical Laboratory and can perform such tasks as dark-field scattering measurements; photoluminescence and Raman spectrum from semiconductor samples acquisition.

TECHNICAL SOFTWARE SKILLS

Advanced level	COMSOL Multiphysics (Electromagnetic waves, heat transfer), MATLAB
Intermediate level	L ^A T _E X, Inkscape (graphical editor)
Basic level	Python, LTSpice (electronic circuits modelling software)

EDUCATION

ITMO University, Saint-Petersburg, Russia
Department of Physics and Engineering
Specialization: Nanooptics and optoelectronics

September 2017 - Ongoing

PRINCIPAL STUDIES

- The classical theory of fields
- Electrodynamics of Continuous Media
- The theory of waveguides and resonators
- Quantum Mechanics
- Statistical Physics
- Physics of Condensed Matter
- Laser physics
- Experimental Nanophotonics

LANGUAGES

Russian	C2 (Native speaker)
English	C1 (Advanced)
German	A2 (Beginner)

PROJECTS

Azimuthal and radial cylindrical vector beams simulation (2020 - *Project manager*)

Team of 2nd course bachelors under my supervising got the 2nd place in the projects contest. We obtained analytical expressions for the field components and simulated resonant nanocylinders excitation with vector beams.

Stimulated Raman emission (2020)

We managed to perform the transition from a spontaneous to stimulated Raman scattering regime for a fully subwavelength nanoparticle. In this project I was responsible for the multi-stage optimization of resonator configuration and provided experimental results with numerical simulations. We published our work in *Nano Letters*.

ONGOING PROJECTS

- Stimulated Raman lasing from subwavelength nanoparticles
- Multipolar analyze of quasi-BIC modes (*Project manager for a 2nd course bachelor*)
- Extreme optical heating of single semiconductor nanocylinder supporting quasi-BIC mode via carrier doping
- Pulsed laser heating of semiconductor nanocylinders

ACADEMIC ACHIEVEMENTS

- Zograf, George P.; Ryabov, Daniil R., et al. "Stimulated Raman scattering from mie-resonant sub-wavelength nanoparticles." *Nano Letters* 20.8 (2020): 5786-5791.
- Oral talk "Stimulated Raman emission from subwavelength nanoparticles" at V International Conference on Metamaterials and Nanophotonics "METANANO" (2020)
- Won the advanced academic state scholarship for the fall semester from ITMO university (2020)

PERSONAL TRAITS

- Eager to learn new things
- Leadership skills
- Productivity and multitasking
- Positive and stress-resistant

HOBBIES

- Hockey fan (both KHL and NHL), like to play myself as well
- Table tennis
- Chess (recent hobby, learning from this year)
- Guitar
- Fiction books
- Running (not from my problems:D)