Konstantin **Nesterov**

Physics Master Student

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Summary

Master student in Physics department who likes to use his knowledge of computers and devices to open new aspects of nature to human mind. Interested in participating in a project that would allow finding optimal problem-solving approach for physical tasks and learning new tools and technologies. Good at numerical simulations and data analysis.

Education

Department of Physics ETHZ

Zurich, Switzerland

M.Sc. in Physics

Sep. 2016 – TODAY

- Top technical university in continental Europe
- Courses:
- Solid State Theory — 4.25
- Statistical Physics — 4.5
- Quantum Optics — 1.5
- Programming Techniques for Scientific Simulations I — 5
- Embedded MEMS Lab — 5
- Nano-Optics — 4
- Quantum Information Processing I: Concepts — 4
- Quantum Information Processing II: Implementations — 4.25
- GPA: 4.06/6

Faculty of Physics MSU (Lomonosov Moscow State University)

Moscow, Russia

B.Sc. in Physics

Sep. 2012 – Jun. 2016

- Top university of post-Soviet space
- Graduate Thesis: “Optical responce of Mie-resonant nanoparticles bounded with dielectric waveguides”
- GPA: 4.51/5

Skills

Programming Python, Node.JS, Arduino

Calculations Wolfram Mathematica, MATLAB, LabVIEW

Languages Russian, English (TOEFL iBT: 116, IELTS Academic: 7.5)

Projects

Nonlinear nanophotonics based on Mie-resonant semiconductor nanostructures

Moscow, Russia

Laboratory of Nanophotonics & Metamaterials, Quantum Electronics Department, Faculty of Physics MSU

Sep. 2015 – Jun. 2016

- Calculations of optimal geometric parameters of silicon waveguides, nanodisks or their ordered arrays, optically bounded with waveguides and nanodisk chains
- Fabrication of optically bounded silicon nanostructure samples
- Investigation of linear spectrums and transmittance of waveguides in wide spectral range, overlapping nanodisk Mie-resonant frequencies
- Investigation of nonlinear optical response and all-optical switching phenomena in created nanostructures via methods of microscopy of optical harmonics generation, four-wave mixing and “pump”-“probe” technique

Evaluation of effective permittivity and permeability of artificial structures

Tohoku, Japan

Summer internship at Department of Physics, Faculty of Science, Tohoku University

Jul. 2015 – Aug. 2015

- Used an electromagnetic simulator (CST Microwave Studio) to design the structures
- Fabricated own structures by photolithography technique
- Characterized the sample using conventional spectrometer and Atomic Force Microscope
- Measured phase information with Mach-Zehnder interferometer
- Retrieved effective permittivity and permeability based on an algorithm (MATLAB & Wolfram Mathematica)

Relativistic quantum cryptography and cryptography based on PTC (Phase Time Coding)

Moscow, Russia

Quantum Information Laboratory, Department of Quantum Electronics, Faculty of Physics MSU

Dec. 2013 - Jun. 2014

- Investigated various interferometric schemes capable of revealing non-classical features of biphoton field generated in the process of SPDC
- Got basic understanding of quantum cryptography protocols and atacs on them