

# Konstantin Nesterov

PHYSICS MASTER STUDENT

Wieslergasse 14, 8049 Zurich, Switzerland

☎ (+41) 78-640-34-51 | ✉ knestero@student.ethz.ch | 📱 wasd171

## 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

M.Sc. IN PHYSICS

- Top technical university in continental Europe
- GPA: 4.7/6

Zurich, Switzerland

Sep. 2016 – TODAY

### Faculty of Physics MSU (Lomonosov Moscow State University)

B.Sc. IN PHYSICS

- Top university of post-Soviet space
- Graduate Thesis: “Optical response of Mie-resonant nanoparticles bounded with dielectric waveguides”
- GPA: 4.5/5

Moscow, Russia

Sep. 2012 – Jun. 2016

## Skills

**Programming** JS, Python, Arduino, C, C++

**Calculations** Wolfram Mathematica, MATLAB, LabVIEW

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

## Projects

### Development of an RF resonator for a double junction ion trap

TRAPPED ION QUANTUM INFORMATION GROUP, DEPARTMENT OF PHYSICS ETHZ

- Calculated optimal parameters for a helical resonator filtering and amplifying RF signal for an ion trap
- Designed tunable helical resonator for the cryogenic setup in Autodesk Inventor
- Produced device complying with engineering limitations
- Compared experimental output with modeled predictions

Zurich, Switzerland

Sep. 2018 – Mar. 2019

### Nonlinear nanophotonics based on Mie-resonant semiconductor nanostructures

LABORATORY OF NANOPHOTONICS & METAMATERIALS, QUANTUM ELECTRONICS DEPARTMENT, FACULTY OF PHYSICS MSU

- 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

Moscow, Russia

Sep. 2015 – Jun. 2016

### Evaluation of effective permittivity and permeability of artificial structures

SUMMER INTERNSHIP AT DEPARTMENT OF PHYSICS, FACULTY OF SCIENCE, TOHOKU UNIVERSITY

- 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)

Tohoku, Japan

Jul. 2015 – Aug. 2015

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

QUANTUM INFORMATION LABORATORY, DEPARTMENT OF QUANTUM ELECTRONICS, FACULTY OF PHYSICS MSU

- 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 attacks on them

Moscow, Russia

Dec. 2013 – Jun. 2014