

Personal information

E-mail Sokolova.AA@phystech.edu
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Languages English (fluent), Russian (native)

Education

Moscow Institute of Physics and Technology
Phystech School of Fundamental and Applied Physics

2019–Present MSc in Applied Mathematics and Physics, 2nd-year student
Subdepartment of Russian Quantum Center
Average grade: 8.5/10
2015–2019 BSc in Applied Mathematics and Physics
Specialisation: Quantum Nanostructures, Materials and Devices
Average grade: 4.75/5

Research Experience

2019–Present Research assistant in **Laboratory of Artificial Quantum Systems** (MIPT, Russia):
developed a single-atom microwave laser based on transmon
- Simulation in QuTiP
- Theoretical calculations
- Sample design in KLayout
- Low temperature measurements: single-tone and two-tone spectroscopy, resonators characterisation
Supervisor: Prof. Oleg Astafiev, scientific advisor: Gleb Fedorov
Jul – Sep 2019 Intern in **Laboratory of Photonics and Quantum Measurements** (EPFL, Switzerland):
automated characterization of SiN resonators using Matlab
- Image processing of chip and optical fiber images
- Device operation and communication
Supervisor: Dr. habil. Tobias J. Kippenberg
2018–2019 Research assistant in **Laboratory of Topological Quantum Phenomena in Superconducting Systems** (MIPT, Russia):
worked on superconducting hybrid structures based on ferromagnetic nanowires
- Deposition and optical characterisation of nanowires
- Sample design
- Low-temperature four-point resistance measurements in magnetic field
- Magnetic force microscopy
- Simulation of magnetic properties in OOMMF
Supervisor: Vasily Stolyarov (PhD)

Publications

Oct 2020 **A.A. Sokolova**, G.P. Fedorov, E.V. Il'ichev, and O.V. Astafiev, Single-atom maser with engineered circuit for population inversion, arXiv preprint (arXiv:2010.04975)

Awards

2015–2017 Abramov's scholarship for excellent study (10% of students awarded)
Mar 2014 Winner of the Russian National Conference "Step to the Future: Astronautics"

Skills

Computer Python (QuTiP, numpy, scipy, basic knowledge of machine learning using Torch), KLayout, Sonnet, Matlab (image processing, device communication), \LaTeX , OOMMF, basic knowledge of LabVIEW and Wolfram Mathematica
Technology Wire bonding, soldering, basic knowledge of electron-beam lithography and photolithography
Experimental physics Superconducting qubit measurements (single-tone spectroscopy, two-tone spectroscopy), experience of work with dilution refrigerator, four-point resistivity measurements, atomic force microscopy, magnetic force microscopy, optical microscopy

Conferences

- Nov 2020 63rd National Scientific Conference MIPT (Dolgoprudniy, Russia), oral presentation "Single-atom maser based on transmon"
- Nov 2020 International scientific conference of students and young scientists "Lomonosov" (Moscow, Russia), oral presentation "Single-atom microwave laser based on transmon"
- Mar 2020 3rd International School on Quantum Technologies (Krasnaya Polyana, Russia), poster "Single-atom microwave laser based on transmon"
- Apr 2019 International scientific conference of students and young scientists "Lomonosov" (Moscow, Russia), oral presentation "Superconducting hybrid structures based on ferromagnetic nanowires"
- Feb 2015 International Student Scientific and Technical Conference "Start to the Science" (Dolgoprudniy, Russia), oral presentation

Other Activities

- 2019–Present Developer of Telegram-bot for Socialize Project (socialize-project.ru), an LGBTQ+ friendly speed dating startup
- 2017–Present Lecturer and writer for Street Epistemology (streetepistemology.ru), a web project and workshop series which popularizes critical and rational thinking
- Jul 2017 Group leader at children camp "Robinsonada"
- Jul–Aug 2016 Participant of the Biological White Sea Summer School (MIPT): explored the biodiversity of the White Sea accompanied by lectures in microbiology, botany, zoology, cell biology, biochemistry