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Education

- 08/2012–12/2016 **Ph.D. physics**, *Group of Applied Physics*, University of Geneva,
Advisors: Prof. N. Gisin and Dr. M. Afzelius
“Exploring storage capability of a solid-state quantum memory for light”
- 09/2010–06/2012 **M.Sc. Physics**, *Institute of Physics*, Kazan Federal University,
Advisors: Prof. V. Samartsev and Prof. A. Kalachev
“Numerical modeling of photon echo signals and superradiance in solid systems”
- 09/2005–06/2010 **B.Sc. Physics**, *Institute of Physics*, Kazan Federal University,
Advisor: Prof. V. Samartsev
“Features of formation of the photon echo in high-doped impurity crystals”

Professional Experience

- 08/2019–present **Senior Postdoc**, *Niels Bohr Institute*, University of Copenhagen
Hybrid quantum networks. Multiphoton entanglement using quantum dot spins. Nonlinear quantum optics (Prof. P. Lodahl’s group)
- 01/2017–07/2019 **Postdoctoral researcher and teaching assistant**, *GAP-Optique*, University of Geneva
Optical quantum memories based on rare-earth ion-doped crystals. Broadband coherent spectroscopic methods. (Dr. M. Afzelius’s group)
- 08/2012–12/2016 **Research and teaching assistant**, *GAP-Optique*, University of Geneva
Quantum memories and repeaters. Multidimensional and macroscopic quantum entanglement.
Advisor: Prof. Nicolas Gisin
- 09/2011–06/2012 **Research engineer**, *Nonlinear Optics Laboratory*, Zavoisky Physical-Technical Institute, Kazan
Experimental laser optics, rare-earth ion-doped crystals spectroscopy, optical echo-spectroscopy,
Advisors: Prof. V. Samartsev and Dr. V. Zuikov
- 08/2009–07/2012 **Programming engineer**, *State Institute of Applied Optics*, Kazan
Modeling of complex 4d phono-target plots, observed by optical-electronic systems for various applications, Advisor: Prof. V. Filippov

Supervision and Mentoring

I'm currently co-supervising 2 PhD students, 1 MSc students. I have co-supervised 3 PhD students and supervised 2 Master students and 2 BSc students until graduation

Jury member: PhD defense of Dr. Emmanuel Zambrini Cruzeiro, December 2017, Université de Genève;
PhD defense of Dr. Peter Clemens Strassmann, March 2019, Université de Genève.
MSc defense of Simon Pabst and Mathias Jakob Rønne Staunstrup, March 2021, NBI.
BSc defense of Rasmus Bruhn Nielsen and Robert Garbrecht Larsen, June 2021, NBI.

Supervising: Vasiliki Angelopoulou (PhD student NBI), Ming-Lai Chan (PhD student NBI), Georgia Anyfantaki (Msc student, NBI)

Previous mentoring: Martin Appel Hayhurst (PhD student NBI), Simon Refshauge Pabst (Msc student, NBI), Mathias Jakob Rønne Staunstrup (Msc student, NBI), Moritz Businger (PhD student, U. de Genève), Antonio Ortu (PhD student, U. de Genève), Emmanuel Zambrini Cruzeiro (PhD student, U. de Genève), Jan Łowiński (U. de Genève)

Teaching experience

2013–2014 Teaching assistant, Physique Générale, Université de Genève.

2014–2015 Students Lab “Light-matter interaction”, Université de Genève.

Building and organizing a series of experimental demonstrations: quantum cloning, optical amplifiers, alkali atoms spectroscopy.

2015–2019 TPIII–TPIV Travaux Pratiques, Université de Genève.

2019–present Bachelor, Master projects on quantum photonics, NBI, University of Copenhagen.

2021–present Advanced topics in solid-state optics (Journal club), NBI, University of Copenhagen.

Conference organization

10/2018 Rare-Earth Workshop, Geneva, *Organizing committee of the international workshop on quantum information processing using rare-earth ions*

International network and relations

○ Collaborations with experimental groups

During my PhD we've collaborated with the group of Prof. Christine Silberhorn (University of Paderborn) on a high-brightness source of a parametric down conversion which has resulted in joint works [Nature Photonics 8, 775-778 \(2014\)](#); [New J. Phys. 16 093058 \(2014\)](#); [Optica 2, \(4\) 279-287 \(2015\)](#).

Strong collaboration with the group of Dr. Philippe Goldner (Chimie Paris Tech) on spectroscopic studies of novel rare-earth ion-doped crystals resulted in series of publications including [Nature Materials 17, 671-675 \(2018\)](#); [Phys. Rev. Lett. 124, 053606 \(2020\)](#).

The collaboration with Dr Arne Ludwig (University of Bochum) and Prof Richard Warburton (University of Basel) on InGaAs quantum dot materials resulted in the joint work [Phys. Rev. Lett. 126, 013602 \(2021\)](#).

○ Collaborations with theoretical groups

The collaboration with Prof. Nicolas Sangouard on micro-macro light matter entanglement resulted in its experimental realization published in [Phys. Rev. Lett. 116, 190502 \(2016\)](#).

The collaboration with Prof. Nicolas Brunner (Geneva) and Dr Marcus Huber (Vienna) on the certification and quantification of the entanglement led to a several experimental works [Phys. Rev.](#)

[Lett. 117, 240506 \(2016\)](#); [Nature Commun 8, 907 \(2017\)](#); [Phys. Rev. Lett. 118, 110501 \(2017\)](#).

Within the HyQ Center there is constant collaboration with the theory group of Prof. Anders Sørensen (NBI) on a generation of cluster states and nonlinear light-matter interfaces. The results are published in [Phys. Rev. A 104, 052604 \(2021\)](#), [arXiv:2111.12523 \(2021\)](#)

Academic assignments of importance

My publication list contains **23 articles** in refereed journals, including 1 **Nature Photonics**, 1 **Nature Materials**, 1 Nature communications, 5 **Phys. Rev. Lett.**, 3 Phys. Rev. B, Optica and others. The list has received more than 700 citations and my current Hirsch index is 14 (Google Scholar); 10 (Web of Science).

Several published papers were featured in more than 100 news websites around the world, in 10 local newspapers; In terms of online attention, one of the papers was ranked as the 99th percentile of the 205,000 tracked articles of a similar age in all journals.

Optical Society of America (OSA)

References

- Prof. **Peter Lodahl** Niels Bohr Institute, University of Copenhagen, Blegdamsvej 17, 2100 Copenhagen, Denmark. Phone: +45 35 32 53 06, lodahl@nbi.ku.dk
- Prof. **Nicolas Gisin** (PhD advisor): Group of Applied Physics, University of Geneva, ch de Pinchat 22, CH-1211 Genève 4, Switzerland. Phone: +41 22 379 0502, nicolas.gisin@unige.ch
- Dr. **Mikael Afzelius** (PhD advisor): Group of Applied Physics, University of Geneva, ch de Pinchat 22, CH-1211 Genève 4, Switzerland. Phone: +41 22 379 0507, mikael.afzelius@unige.ch
- Prof **Alexey Kalachev** (MSc advisor): Director of Kazan E. K. Zavoisky Physical -Technical Institute, Sibirsky tract, 10/7 420029 Kazan, Russia. Phone: +7 843 272 0503, a.a.kalachev@mail.ru

Additional Information

Languages: Russian, English, French