

Carrier track**Personal data**

Name Oxana Mishina
Born 14 August 1982, Murmansk, Russia
Nationality Russian
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Qualification PhD in Physics, 6 years of post-doctoral research
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**Education**

10/2005–01/2009 **PhD in theoretical physics**
Thesis title *Multi-mode quantum swapping between light and atomic system via Raman scattering*
Institution Theoretical Physics Department, St.-Petersburg State Polytechnic University, Russia
09/2003 –06/2005 **Master of science in technical physics (Honours) GPA: 4.8/5.0**
Institution Nuclear Physics Department, St.-Petersburg State Polytechnic University, Russia

Research activities

02/2013-present External member, Theoretical quantum physics group, USAAR, Saarbuecken, Germany
Group leader Prof. Giovanna Morigi
Contribution Developing a new way to explain the quantum theory to school pupils involving entertainment and interactive story telling. Setting up and taking care of the connection between the department and the Hoch-Wald Gymnasium Saarland.
03/2013-02/2015 Post-doc, Theoretical quantum physics group, USAAR, Saarbuecken, Germany
Group leader Prof. Giovanna Morigi
Contribution Theoretical project “Light-phonon quantum interface with atomic arrays in a cavity” financed by the **personal Marie Curie fellowship (IEF)** from the European Union.
09/2011–02/2013 Post-doc, Theoretical quantum physics group, University of Saarland (USAAR), Saarbuecken, Germany
Group leader Prof. Giovanna Morigi
Contribution Working on cooling of atomic arrays to the ground state of motion in an optical cavity within the project “The Atomic QUantum Technologies (AQUATE)”
02/2009–08/2011 Post-doc, Laboratoire Kastler Brossel (LKB), UPMC, ENS, CNRS, Paris, France
Group leader Prof. Elisabeth Giacobino
Contribution Caring the theoretical project “Quantum memory for light based on ensemble of multi-level atoms” provided **2 years personal fellowship by IFRAF and 8 month by CNRS**.
09/2007-06/2008 Research stay abroad during PhD, Niels Bohr Institute, Copenhagen, Denmark
Danish National Research Foundation Center for Quantum Optics (QUANTOP).
Group leader: Prof. Eugene Polzik, prof. Anders S. Sørensen
Contribution: Theoretical project “High efficiency quantum memory for light with atomic ensembles inside a cavity” financed by the **personal fellowship (Russian government)**.
10/2005–01/2009 PhD, Theoretical Physics Department, SPbSPU, Saint-Petersburg, Russia
Group leader: Prof. Dmitry V. Kupriyanov

Contribution: Participation in: “Advanced Quantum Imaging and Quantum Information with Continuous Variables” (INTAS), “Quantum coherent effects in multi-scattering of light by atomic ensembles” (RFBR), **personal fellowship (Dynasty foundation, 1 year)**

2003 – 2005 Undergraduate, Theoretical Physics Department, SPbSPU, Saint-Petersburg, Russia

Group leader: Prof. Dmitry V. Kupriyanov

Contribution: Participation in the project: “Storage of Quantum Information in Trapped Neutral Atoms” funded by INTAS, **personal fellowship (Dynasty foundation 1 year)**

Teaching qualifications and experience

Qualification:

- 03/02/2015 Qualified as teacher-researcher (enseignant-chercheur) in section 30-Diluted media and optics (Milieux dilués et optique) by the French Ministry of Education.

Tutoring PhD students:

- Michael Scherman (2011, France), Alexandra Scheremet (2012, France/Russia), Hannes Gothe (2014-present, Germany)

Seminars:

- Electrodynamics, 3 hours/week, 3 semesters (SpbSTU, Russia)
- Classical mechanics, 3 hours/week, 2 semesters (SpbSTU, Russia)
- Advanced quantum physics, 3 hours/week, 1 month (Saarland University, Germany)
- Quantum optics with cold gases, 2 hours/ 2 weeks, 1 semester (Saarland University, Germany)

Private classes in Physics and Mathematics for the high school student (1 year, 2 pupils)

Scientifique production and dissemination

- **19 articles all open access:** 13 articles in peer review journals (Phys. Rev. A, New J. Phys., Opt. Exp., EJPD, Optics & Spectroscopy), 6 contributions to the conference proceedings.
- **h-index = 7** (seven articles cited minimum seven times)[ISI web of science], h=9 [Google scholar].
- **12.6 average citations per article** [ISI web of science], 13.6 [Google scholar].
- **151 total citations, 27 in 2015** [ISI web of science]; 244 total citations, 45 in 2015 [Google scholar].
- Participation in **12 international conferences and 12 symposiums/workshops** (14 oral presentations, 3 invited talks and 10 posters)
- **NJP highlights 2014: Video abstract** my work [12]: 228 views in 19 month (~3 views/week).
- **15 scientific visits** and seminars worldwide
- **Invited researcher at NBI**, Copenhagen, Denmark (one month in 2006)
- **Invited researcher at ICFO**, Barcelona, Spain (one month in 2007).

Outreach

- 20 Jul 2010 **Science ambassador for the artists** from Parsons Paris School of Art and Design
Paris, France Presenting the Quantum memory: theory and experiment in UPMC (6 artists).
- 24-30 Sep 2014 **Educator at the Highlights of Physics: "Quantum Worlds"**
Saarbrücken, Germany Presenting the Quantum Cryptography to the general public (33 000 visitors).
- 25 Mar 2015 **Science ambassador for the literature students** at American University of Paris
Paris, France Interactive seminar „Moving in the quantum world.“ (15 students)
- 19 Apr 2015 **Educator for the scientists** at the 3rd Open Academia
Saarbrücken, Germany Interactive seminar „Moving in the quantum world.“ (8 participants)
- 21 Apr 2015 **Marie Curie ambassador for the school pupils** in Gymnasium Wendalinum
St.Wendel, Germany Interactive seminar „Moving in the quantum world.“ (24 pupils of 10th grade)
- 3 Jul 2015 **Marie Curie ambassador for the school pupils** in Berufsbildungszentrum Merzig
Merzig, Germany Interactive seminar „Moving in the quantum world.“ (25 pupils of 11th grade)

- 23 Jul 2015 **Educator for the physicist** at the summer school from the Dynasty foundation.
Zelenogorsk, Russia Online seminar: “Who to communicate quantum science.” (18 participants)
- From Sep 2015 **Science ambassador in schools:** bringing the news from the Physics department of
Saarland, Germany the Saarland University to teachers and pupils (Hoch-Wald Gymnasium, Wadern).
- 1-24 December 2015 **Coordinator of the „Physik für Flüchtlinge“ project** from the German Physical
Zweibrücken/Lebach, Germany society: building up a team of 25 voluntaries to bringing one physics experiments
every day to the children in the refugee camps (Zweibrücken(2) and Lebach).
- 3 Feb 2016 **Science ambassador for the school pupils** in Hoch-Wald Gymnasium
Wadern, Germany Interactive seminar „Moving in the quantum world.“ (30 pupils of 12th grate)

Language skills

Russian (Mother tong), English (Proficient user), French (Independent user), German (Independent user), Spanish (Beginner).

Reviewer/editorial board member since 2010

Reviewer: Scientific reports, Opt. Expr., Opt. Com., NJP, EPL, JOSAB, Special issues of QIP, EPJD, Jphys:B, Jphys:A. **Editorial:** American Association for Science and Technology (AASCIT) (from 12.2014), Atoms (from 01.2014).

Fellowships and awards

- 2013** Marie-Curie Intra-European Fellowship for career development (IEF), European Union (2 years)
- 2010** Postdoctoral fellow, Île-de-France Cold Atom Research Institute, IFRAF (1 year)
- 2009** Postdoctoral fellow, Île-de-France Cold Atom Research Institute, IFRAF (1 year)
- 2007** Presidential scholarship for scientific training abroad, Russian government (10 month)
- 2006** Support for Young Scientists without an Academic Degree, Dynasty Foundation (1 year)
- 2005** Medal “For the Devotion to Science”, Saint-Petersburg Assembly of Young Scientists and Specialists
- 2005** Support for Undergraduate Students, Dynasty Foundation (1 year)

Scientific visits

- 2015 **Theoretical Physics and Astronomy Department, Herzen University, 3 June**
Seminar: *"Квантовое сжатие коллективного атомного движения в оптическом резонаторе."*
- 2015 **Theoretical Physics Department, St.-Petersburg State Polytechnic University, Russia, 1-5 June**
Seminar: *"Квантовое сжатие коллективного атомного движения в оптическом резонаторе."*
- 2015 **Theoretocal physics group, Paul Sabatier University, Toulouse, France 15-18 Februar**
Seminar: *"Cavity mediated cooling and squeezing of a collective atomic motion."*
- 2014 **SYRTE, Paris, France, 27-28 November**
Seminar: *"Cavity cooling and squeezing of a collective atomic motion."*
- 2014 **Laboratoire Amie Cotton, Orsay, France, 22 May**
Seminar: *"Cavity cooling of an atomic array."*
- 2013 **Quantum Pptics Lab, Physics Faculty, St. Petersburg State University, 20 Dec.**
Seminar: *"Охлаждение атомной решетки до абсолютного нуля с помощью оптического резонатора"*.
- 2013 **Theoretical Physics Department, St.-Petersburg State Polytechnic University, Russia, 20 Dec.**
Seminar: *"Охлаждение атомной решетки до абсолютного нуля с помощью оптического резонатора"*.
- 2013 **ENS, Paris, France, LKB, group of Jakob Reichel, 9 April**
Seminar: *"Optomechanics with an atomic array in a cavity."*
- 2011 **IMQ, Garching, Germany, group of Ignacio Cirac, 23-25 February**
Seminar: *"Coherent light-mater interface via Λ -transition with multiple excited levels."*
- 2011 **USD, Saarbruecken, Germany, group of Giovanna Morigi, 23-25 February**
Seminar: *"Influence of hyperfine structure on the coherent Raman scattering in alkali-metals."*
- 2010 **ENS, Paris, France, LKB, group of Jakob Reichel, 9 November**
Seminar: *"Influence of hyperfine structure on the coherent Raman scattering in alkali-metals."*
- 2008 **UPMC, Paris, France LKB, group of Elisabeth Giacobino, 8-12 April**
Seminar: *"Quantum memory for a q-bit based on atomic medium in the cavity."*
- 2008 **UAB, Barcelona, Spain, group of Giovanna Morigi, 25-29 March**
Seminar: *"Quantum memory for a q-bit based on atomic medium in the cavity."*
- 2007 **ICFO, Barcelona, Spain, group of Morgan Mitchell, 11 April - 10 May**
Seminar: *"Coherent forward scattering of light by an atomic medium"*
- 2006 **NBI, Copenhagen, Denmark, QUANTOP, group of Eugene Polzik, 13 May -10 June**
Seminar: *"Coherent forward scattering of light by an atomic medium."*

Summary of the scientific achievements

My journey through the world of quantum interaction between atoms and light has gone along two major stages. At first I was curious in how light can manipulate the quantum magnets inside of atoms (atomic spins), i.e. their internal degree of freedom. It turned out that this quantum magnets can efficiently store the information about the quantum state of light, and later on give it back on demand, with an efficiency unmatched by any other alternative system up to now. This is considered to be a basis for the new type of memory in the future quantum computers. At the second stage I got fascinated by how light can change the motion of atoms and vice versa. Along this line I found that one can use light to make several atoms interconnected in such a way that if we would look only at one of them, we would instantaneously know where all the other atoms are located. The astonishing side of this trick is in the fact that it seems to contradict the very nature of quantum motion, since the position of each quantum atom is not defined until we observe it, in other words it is uncertain. Although, when atoms are correlated in this special way, i.e. entangled, one could predict exactly the positions of all the other atoms by looking at only one of them. This special non-classical correlations called entanglement are the fundamental basis of the new technology called quantum teleportation, which is a key resource for the future communication technology.

While exploring the interaction of light with atomic magnets, I was analysing how a cloud of many atoms interacts with a pulse of light to find the optimal way to pass the quantum information from the light to the atoms. I explored two principally different aspects of it. One was related to the fact that the cloud is extended in space and light pulse lasts some time, which caused atoms in some positions along the cloud to record more information about the light than atoms in other positions. Also, the location of these different positions (spatial modes) depends on how the information was encoded in time along the light pulse (temporal modes). Building up a theoretical model describing this *multi-mode interface between atoms and light* [p1-p3,c1-c3] was one of the important achievements of my research, which gave birth to several interesting discoveries later on. I proposed a new protocol for efficient storage and retrieval of the quantum light [p6,p10,p13,c3-c5], discovered how to entangle the magnets of different atoms in a cloud [p1,c1], and even how to entangle atoms with the light passing through them [c2]. Moreover, the experimental demonstration of light squeezing in this configuration [W. Wasilewski, et.al., Opt. Expr., Vol. 17, 14444 (2009)] successfully confirmed these predictions. The second aspect of my research along this direction was related to the structure of an atomic spin itself, which is encoded in a rich and complex structure of atomic energy levels. *Incorporating all the complex atomic level structure into the theoretical description* was another important achievement [p1,p4,p5,p7], which not only made the predictions of the calculations coincide with the experimental results with a high accuracy [p1,p8,p9,p11], but also allowed to discover new techniques to enhance the efficiency of the quantum memory [p8,p9]. These works are unique and they were broadly recognised, which is indicated by several invited talks and high citation record of the papers [p1]. The most fascinating point for me in all this story is the fact that these two aspects, *the internal structure of each atom and the multi-mode nature of the collective interface, are interconnected*. The relation is very elegant: if atoms would have the smallest possible internal magnet (spin), equal to $\frac{1}{2}$, i.e. only two internal energy levels, only one collective mode of atoms would interact with only one temporal mode of light. Contrary, if atoms would have spins greater than or equal to 1, then all collective modes of atoms and temporal modes of light would be involved into the interaction process.

During the exploration of the interaction between light and atomic motion, I focused on atoms with the simplest internal structure, but considered them to be confined in special traps, where their motion is quantized. This work was driven by a purely fundamental question about a possibility to control the quantum state of a chain of such atoms using light, and what new aspects we could learn about the quantum motion of a collective of atoms. The main achievement here was to develop a theoretical description for this system including different sources of noise of an actual experimental apparatus [p12]. Based on this model I proposed a new method to cool all the atoms of the chain down to the lowest energy state inside the traps [p12]. Furthermore, I discovered a way to entangle the particles in different traps, and proposed experimental feasible scheme to implement it [c6,p14].

The last year of my work I dedicated to the area of science communication to school pupils. In particular I was researching on the way to introduce children to the mysterious quantum world. I developed an interactive seminar for pupils where along the entertaining story I tell them about a peculiar nature

of quantum motion and the pupils are welcomed to exercise their imagination and draw the quantum objects. Further on we discuss all together the drawings and make sure that we understood each other and learned the fundamental concepts of the quantum theory. After presenting this seminar to several schools of Saarland with a positive feedback from teachers and children, I was invited to be responsible of setting up and caring on the connection between one of the gymnasium in Saarland and the Theoretical quantum physics department. This activity is highly appreciated from both sides which encourages me to continue.

Publications

Publication record

ISI web of science statistics: Items found=13; h-index=7, Average citation per item=12.5;

Google scholar statistics: Items found = 18; h-index=9; Average citation per item=13.6; i10-index=8

In Preparation

p14 **O. Mishina**, G.Morigi
 “Cavity based squeezing of a collective atomic motion”

Publications in the peer review journals

p13 Z.Zhen, **O. Mishina**, N. Treps, C. Fabre
 “Atomic quantum memory for multimode frequency combs”, to appear in a **Phys. Rev. A**, 91, 031802(R), arxiv:1411.5932 [\[OA\]](#)

p12 *** **O.Mishina**,
 “Cavity cooling of an atomic array”,
New J. Phys. 16, 033021 (2014) [\[OA\]](#)

p11 L. Giner, L. Veissier, B. Sparkes, A. Sheremet, A. Nicolas, **O. Mishina**, M. Scherman, S. Burks, I. Shomroni, D. Kupriyanov, P. K. Lam, E. Giacobino, J. Laurat,
Experimental Investigation of the Transition between Autler-Townes Splitting and Electromagnetically-Induced Transparency
Phys. Rev. A 87, 013823 (2013) [\[OA\]](#)

p10 T.Golubeva, Yu.Golubev, **O.Mishina**, A. Bramati, J. Laurat, E.Giacobino,
High speed spatially multimode Lambda-type atomic memory with arbitrary frequency detuning
EJPD 66: 275 (2012)

p9 ***M. Scherman, **O.S. Mishina**, P. Lombardi, J. Laurat, E. Giacobino,
Enhancing electromagnetically-induced transparency (EIT) in a multilevel broadened medium
Optics Express 20, 4346 (2012) [\[OA\]](#)

p8 **O.S. Mishina**, M. Scherman, P. Lombardi, J. Ortalo, D. Felinto, A.S. Sheremet, A. Bramati, D.V. Kupriyanov, J. Laurat, E. Giacobino
Enhancement of electromagnetically induced transparency in room temperature alkali metal vapor
Optics & Spectroscopy, 111(4), p. 583-588 (2011) [\[OA\]](#)

p7 *** **O.S. Mishina**, M. Scherman, P. Lombardi, J. Ortalo, D. Felinto, A.S. Sheremet, A. Bramati, D.V. Kupriyanov, J. Laurat, E. Giacobino
Electromagnetically induced transparency in inhomogeneously broadened Lambda-transition with multiple excited levels
Phys. Rev. A, 83, 053809 (2011) [\[OA\]](#)

p6 T.Golubeva, Yu.Golubev, **O.Mishina**, A. Bramati, J. Laurat, E.Giacobino,
High speed spatially multimode atomic memory
Phys. Rev. A. 83, 053810 (2011) [\[OA\]](#)

p5 *** S. Sheremet, L. V. Gerasimov, I. M. Sokolov, D. V. Kupriyanov, **O. S. Mishina**, E. Giacobino, and J. Laurat,
Quantum memory for light via a stimulated off-resonant Raman process: Beyond the three-level scheme approximation
Phys. Rev. A, 82, 033838 (2010) [\[OA\]](#)

p4 A.S.Sheremet, **O.S.Mishina**, N.V.Larionov, D.V.Kupriyanov,
Autler-Townes effect in the D1-line hyperfine structure of an alkali atom
Optics & Spectroscopy, Vol. 108(2), 313 (2010) [\[OA\]](#)

- p3 **O. Mishina**, N. Larionov, A. Sheremet, I. Sokolov, and D. Kupriyanov,
Stimulated Raman process in a scattering medium applied to the quantum memory scheme
Phys. Rev. A, 78, 042313 (2008) [\[OA\]](#)
- p2 *** **O. Mishina**, D. Kupriyanov, J. Müller, E. Polzik,
Spectral theory of quantum memory and entanglement via Raman scattering of light by an atomic ensemble
Phys. Rev. A, 75, 042326 (2007) [\[OA\]](#)
- p1 Kupriyanov D., **Mishina O.**, Sokolov I., Julsgaard B., Polzik E.
Multimode entanglement of light and atomic ensembles via off-resonant coherent forward scattering
Phys. Rev. A, 71, 032348 (2005) [\[OA\]](#)

Contributions to conferences

- c6 **O.S. Mishina**, G. Morigi
Squeezing of a collective atomic motion
3rd INTERNATIONAL CONFERENCE ON QUANTUM TECHNOLOGIES 2015,
Moscow, Russia, (2015); Conference Booklet p. 139 [\[OA\]](#)
- c5 A.S. Sheremet, **O.S. Mishina**, E. Giacobino, D.V. Kupriyanov,
Atomic quantum memories for light
NATO Advanced Research Wprkshop on "Quantum Cryptography and Computing: Theory and Implementations, Gdansk, Poland, (2009); IOS press BV, Amsterdam, (2010) [\[OA\]](#)
- c4 D. Kupriyanov, O. Mishina, A. Sheremet, N. Larionov, I. Sokolov,
Quantum memory for light via a Raman process in an optically dense atomic system,
Bulletin of the American Physical Society Vol. 54, issue 7, L3.00004 (2009) [\[OA\]](#)
- c3 **Mishina O.S.**, Kupriyanov,
Quantum Memory via Coherent Scattering of Light by Optically Thick Atomic Medium
NATO Science for Peace and Security Series - D: Information and Communication Security,
Vol. 11, p. 155–162, (2007) [\[OA\]](#)
- c2 **O.S. Mishina**, D.V. Kupriyanov, I.M. Sokolov, B. Julsgaard, E.S. Polzik
Entanglement of Light and Spin Waves Upon Coherent Forward Light Scattering by an Ensemble of Oriented Atoms,
Bulletin of the Russian Academy of Sciences: Physics Vol. 70, issue 3, pp. 462-467 (2006) [\[OA\]](#)
- c1 **Mishina O.S.**, Kupriyanov D.V., Polzik E.S.
Macroscopic quantum information channel via the polarization-sensitive interaction between the light and spin subsystems
NATO Science Series, III: Computer and Systems Sciences, Vol. 199, pp. 346-352 (2005) [\[OA\]](#)

Conference contributions

Oral presentations

- 15 **XIV International Conference on Quantum Optics and Quantum Information**, Minsk, Belarus (2015),
O.Mishina, G. Morigi,
Squeezing of a collective atomic motion (**invited**) (not attended due to the bureaucratic issues)
- 14 **RQC 14 - International Conference on Problems of Strongly correlated and interacted systems**, St.-Petersburg, Russia (2014),
O.Mishina, G. Morigi,
Towards the light-phonon quantum interface with an atomic array in a cavity
- 13 **Conference on Resonator QED**, Munich, Germany (2013),
O.Mishina, G. Morigi,
Optomechanics with an atomic array in a cavity
- 12 **Gordon Research Conference: Atomic physics**, Newport RI, US (2013),
O.Mishina, G. Morigi,
Optomechanics with an atomic array in a cavity” (not attended due to the visa refection)
- 11 **German Physical Society Spring-Meeting**, Hanover, Germany (2013),
O. Mishina, G.Morigi,
Optomechanics with an atomic array in a cavity.
- 10 **Quantum Optics VI**, Piriápolis, Uruguay (2012)
O.Mishina, G. Morigi,
Cavity cooling of an atomic array
- 9 **Interantional Conference on Lasers and Electro-Optics (CLEO)**, San Jose, California, USA (2012)
O. Mishina, M. Scherman, P. Lombardi, A. Bramati, A. Sheremet, D. Kupriyanov, J. Laurat, E. Giacobino
Enhancement of electromagnetically-induced transparency in a multilevel broadened medium
- 8 **German Physical Society Spring-Meeting**, Stuttgart, Germany (2012)
O. Mishina, M. Scherman, P. Lombardi, A. Bramati, A. Sheremet, D. Kupriyanov, J. Laurat, E. Giacobino
Electromagnetically induced transparency (EIT) in a realistic atomic quantum memory for light
- 7 **“20th International Laser Physics Workshop**, Sarajevo, Bosnia and Herzegovina (2011)
O. Mishina, M. Scherman, P. Lombardi, A. Bramati, A. Sheremet, D. Kupriyanov, J. Laurat, E. Giacobino
Quantum state transfer between light and atoms via Λ -transition with multiple excited levels (**invited**)
- 6 **XIII International Conference on Quantum Optics and Quantum Information**, Kiev, Ukraine (2010)
O. Mishina, M. Scherman, P. Lombardi, J. Ortalo, D. Felinto, A. Sheremet, D.V. Kupriyanov, J. Laurat, E. Giacobino
Enhancement of electromagnetically induced transparency in hot alkali gases (**invited**)
- 5 **D.N. Klyshko Memorial seminar**, Moscow, Russia (2007),
O. Mishina, D. Kupriyanov,
Quantum memory and entanglement via Raman scattering of light by optically thick atomic medium
- 4 **ICO Topical Meeting on Optoinformatics/Information Photonics**, Saint-Petersburg, Russia (2006),
O. Mishina, D. Kupriyanov, J. Muller, E. Polzik,
Quantum memory for light via alignment-type interaction with a spin-one system
- 3 **NATO Advanced Research Workshop: QIP From Theory to Experiment**, Crete, Greece (2005),
O. Mi- shina, D. Kupriyanov, I. Sokolov, B. Julsgaard, E. Polzik
Macroscopic quantum information channel
- 2 **International School-Seminar in Fundamental Physics for Young Scientists**, Suzdal-Vladimir, Russia (2005),
O. Mishina, D. Kupriyanov,
Entanglement of light and spin mode via coherent forward scattering of light by oriented atomic ensembles

- 1 **Polytechnic Symposium**, Saint-Petersburg, Russia (2004),
O. Mishina, D. Kupriyanov,
Quantum theory of coherent forward scattering of light by oriented atomic ensembles

Poster presentations

- 10 **3rd International Conference on Quantum Technologies**, Moscow, Russia, (2015)
O. Mishina, G.Morigi,
Cavity mediated squeezing of a collective atomic motion
- 9 **Designed Quantum States of Matter**, Bad Honnef, Germany (2014),
O. Mishina, G.Morigi,
Cavity mediated squeezing of a collective atomic motion
- 8 **German Physical Society Spring-Meeting**, Stuttgart, Germany (2013),
O. Mishina, G.Morigi,
Cavity cooling of an atomic array in the presence of the spontaneous emission
- 7 **German Physical Society Spring-Meeting**, Stuttgart, Germany (2012),
O. Mishina, G.Morigi,
Cavity cooling of an atomic array
- 6 **International Conference “Quantum Optics V**, Cozumel, Mexico (2010),
O.S. Mishina, M. Scherman, P. Lombardi, J. Ortalo, D. Felinto, A.S. Sheremet, D.V. Kupriyanov,
J. Laurat, E. Giacobino,
Death and revival of an electromagnetically induced, transparency in hot alkali gases
- 5 **International Conference «Continuous Variables Quantum Information Processing »**, Herrsching, Germany (2010),
O. Mishina, M. Scherman, P. Lombardi, J. Ortalo, D. Felinto, A. Sheremet, D. Kupriyanov, J. Laurat, E. Giacobino,
EIT in the D2-line 133Cs atoms: comparison with the three-level mode
- 4 **The 9th International Conference on Quantum Communication, Measurement and Computing**, University of Calgary, Canada (2008),
O. Mishina, A. Sørensen,
Quantum memory for light based on atomic ensemble in a narrow band cavity
- 3 **QUROPE Winter School**, Obergurgl, Austria (2007),
O. Mishina, D. Kupriyanov, J. Muller, E. Polzik,
Spectral theory of quantum memory via Raman scattering of light by an atomic ensemble
- 2 **Continuous Variable Quantum Information Workshop**, Copenhagen, Denmark (2006),
O. Mishina, D. Kupriyanov, J. Muller, E. Polzik,
Quantum memory for light via alignment-type interaction with a spin-one system
- 1 **X International Conference on Quantum Optics ICQO**, Minsk, Belarus, (2004),
O. Mishina, D. Kupriyanov ,
Quantum theory of coherent forward scattering of light on polarized atoms: Entanglement in the system of collective variables of light and atomic system