

## CURRICULUM VITAE

### Personal information

Personal details **Aleksey K. Fedorov**, [rqc.ru/members/aleksey.fedorov](http://rqc.ru/members/aleksey.fedorov), November 1, 1993.  
Contact details [akf@rqc.ru](mailto:akf@rqc.ru), +7 (916) 297-09-77, 100 Novaya St., 143025, Skolkovo, Moscow, Russia.

### Education

Sept'09 – **Bauman Moscow State Technical University — Bauman University**,  
Computer science & Control systems, *supervisor*: Prof. M.P. Sychev ([zi@bmstu.ru](mailto:zi@bmstu.ru)).  
Sept'00 – Jun'09 **Gymnasium 24**, Moscow Region, Lubertsy, *summa cum laude*.

### Research experience

Oct'12 – **Student fellow**, [Russian Quantum Center — RQC](#), *Quantum optics & Many body theory*,  
*point of contact*: Prof. A.I. Lvovsky, *supervisor*: Prof. G.V. Shlyapnikov.  
Dec'10 – **Engineer**, [Institute for Problem in Mechanics](#), *Russian Academy of Science*,  
*Mechanics of controlled systems*, *supervisor*: Dr. A.I. Ovseevich.  
Dec'13 – Jan'14 **Visiting scholar**, [Department of Physics, Harvard University](#),  
*Condensed matter theory*, *supervisor*: Prof. E.A. Demler.  
Oct'12 – Jul'13 **Engineer**, [Department of Physics, Bauman University](#),  
*Condensed matter theory*, *supervisor*: Dr. S.O. Yurchenko.  
Jul'12 – Aug'12 **Visiting research associate**, [Department of Physics and Astronomy, University of Calgary](#),  
[Institute for Quantum Science and Technology](#), *supervisor*: Prof. A.I. Lvovsky.

### Teaching experience

2013 **Teaching**, [RQC quantum physics classes](#) for high school students.  
2011 – 2013 **Teaching**, [Evening physics and mathematics school at Bauman University](#), *general physics*.  
2012 – 2013 **Supervising**, *co-supervisor in high school research projects at “Step into the Future, Moscow”*.

### Professional associations

Reviewing [PRA](#), [EPL](#), [J. Theor. Comp. Chem.](#)  
Membership Student membership in [AMS](#), [APS](#), [OSA](#), [SPIE](#), [IEEE](#).

### Honors and awards

Since 2014 Bauman University Scientific Committee Fellowship.  
Since 2014 Bauman University Scientific Committee Fellowship.  
Since 2013 Russian Quantum Center Fellowship for Students.  
Since 2013 Russian Federation Government Fellowship.  
2012 – 2013 Bauman University Fellowship for Science.  
2013 “New Generation” Award, XV National forum for information security “INFOFORUM 2013”.  
2011 – 2013 Moscow Institute for Physics and Technology, the best conference talk.  
2011 – 2013 Bauman University, the best student scientific work on Theoretical Physics.  
2012 Award for students, Institute for Problem in Mechanics RAS.  
2012 Diploma, Bauman University competition for the best student work on Theoretical Physics.  
2011 Moscow Physical Society award: the best poster on “Conference of Young Physicist”.  
2009 – 2012 Bauman University, UNESCO department diploma.  
2009 “Step into the Future, Moscow”, Bauman University. The best scientific work.

### Journal publications

2013 **A.K. Fedorov**. [Feynman integral and perturbation theory in quantum tomography](#) // *Physics Letters A* **377**, 2320 (2013).  
2013 **A.K. Fedorov, E.O. Kiktenko**. [Quaternion representation and symplectic spin tomography](#) // *Journal of Russian Laser Research* **34**, 477 (2013), [arXiv:1308.6549](https://arxiv.org/abs/1308.6549).

- 2013 **A.I. Ovseevich, A.K. Fedorov.** [Asymptotically optimal feedback control for a system of linear oscillators](#) // *Doklady Mathematics* **88**, 613 (2013).

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## Preprints on arxiv.org

- 2013 **A.K. Fedorov, A.I. Ovseevich.** Asymptotic control theory for a system of linear oscillators // submitted, [arXiv:1308.6090](#)
- 2013 **E.O. Kiktenko, A.K. Fedorov.** Tomographic causal analysis of two-qubit states // [arXiv:1309.4948](#).

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## Conference talks & posters

- 04/23/2014 *Roton-maxon excitation spectrum for Q2D weakly interacted dipolar excitons* (poster). [A.K. Fedorov, I.L. Kurbakov and Yu.E. Lozovik.](#) [APS March Meeting 2014](#), Denver, Colorado [*Bulletin of the American Physical Society* **59**, 1 (2014)].
- 11/29/2013 *Roton instability of quasi-two-dimensional weakly interacted dipolar excitons* (poster). [A.K. Fedorov, I.L. Kurbakov, Yu.E. Lozovik.](#) 56th Scientific Conference of Moscow Institute of Physics and Technology, Troitsk.
- 09/03/2013 *Asymptotically optimal feedback control for a systems of linear oscillators.* [A.K. Fedorov, A.I. Ovseevich.](#) [The 37th Conference for Young Scientists and Engineers Information Technology and Systems](#), Svetlogorsk.
- 07/23/2013 *Feynman path integrals in quantum tomography* (poster). [A.K. Fedorov.](#) [The 2nd International Conference on Quantum Technologies](#), Moscow.
- 07/23/2013 *2D tilted dipoles: density waves vs. phonon collapse* (poster). [A.K. Fedorov, I.L. Kurbakov and Yu.E. Lozovik.](#) [The 2nd International Conference on Quantum Technologies](#), Moscow.
- 07/08/2013 *Asymptotically optimal feedback control for a system of linear oscillators* (invited). [A.I. Ovseevich, A.K. Fedorov.](#) [The International Conference on Mathematical Control Theory and Mechanics](#), Suzdal.
- 06/11/2013 *Asymptotically optimal feedback control for a system of linear oscillators* (plenary). [A.I. Ovseevich, A.K. Fedorov.](#) [The 39th International Conference "Application of Mathematics in Engineering and Economics](#), Sozopol, Bulgaria [*AIP Conference Proceedings* **1570**, 257 (2013)].
- 06/06/2013 *Terahertz spectroscopy of phase transition in water* (poster). [K.I. Zaytsev, I.N. Fokina, S.O. Yurchenko, and A.K. Fedorov.](#) The 2nd Russia-Japan-USA Symposium on the Fundamental and Applied Problems of Terahertz Devices and Technologies, Moscow [*Journal of Physics: Conference Series* **486**, 012024 (2014)].
- 11/23/2012 *Density waves supersolid in a two-dimensional gas of tilted dipoles.* [A.K. Fedorov, I.L. Kurbakov, Yu.E. Lozovik.](#) 55th Scientific Conference of Moscow Institute of Physics and Technology, Troitsk.
- 09/13/2012 *Phase delay distribution in dome lens antenna with displaced feed array.* [V.I. Litun, V.N. Mitrokhin, A.K. Fedorov.](#) 22nd International Crimean Conference "Microwave & Telecommunication Technology", Sevastopol, Ukraine [*IEEE Proceedings Catalog Number CFP12788-PRT*].
- 07/27/2012 *Quantum tomograms and their application in quantum information science.* [A.K. Fedorov, S.O. Yurchenko, K.I. Zaytsev, I.N. Fokina.](#) [21st Intersectional Laser Physics](#), Calgary, Canada [*Journal of Physics: Conference Series* **414**, 012040 (2013)].
- 07/25/2012 *Roton instability and phonon collapse of two-dimensional tilted dipole atoms.* [Yu.E. Lozovik, A.K. Fedorov, I.L. Kurbakov](#) (poster). [21st Intersectional Laser Physics](#), Calgary, Canada [*Journal of Physics: Conference Series* **414**, 012036 (2013)].
- 02/06/2012 *Roton instability phenomena of two-dimensional tilted dipole system in a thin layer.* [A.K. Fedorov, Yu.E. Lozovik, I.L. Kurbakov](#) (poster). Young Physicist Conference, Moscow [*Physics in High Education. Supplementary.* **18**, 61 (2012).]
- 11/25/2011 *Roton instability of two-dimensional tilted dipoles in a thin layer.* [I.L. Kurbakov, Yu.E. Lozovik, A.K. Fedorov.](#) 54th Scientific Conference of Moscow Institute of Physics and Technology, Troitsk.
- 02/01/2011 *Tomographic approach in quantum mechanics.* [A.K. Fedorov, S.O. Yurchenko](#) (poster). Young Physicist Conference, Moscow [*Physics in High Education. Supplementary.* **17**, 23 (2011)].
- 01/26/2011 *Tomographic approach in quantum mechanics.* [A.K. Fedorov, S.O. Yurchenko.](#) The 6th Russian Scientific Conference "Irreversible Processes in Nature and Technology", Moscow.

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## Seminars talks

- 01/17/2013 *Feedback control for a system of linear oscillators*, Scientific Seminar on Control Theory and Dynamical Systems, Head of the seminar is Academician F.L. Cherus'ko.

- 04/09/2012 *Feynman path integrals for quantum tomograms*, Theory of functions and functional analysis department, mechanics & mathematics faculty, Lomonosov Moscow State University (Head of the seminar is Dr. O.G. Smolyanov).
- 03/22/2012 *Tomographic methods in quantum mechanics*, Institute for Spectroscopy RAS (Head of the seminar Dr. Yu.E. Lozovik).
- 03/07/2012 *Instability of two-dimensional tilted dipole in a thin layer: phonon collapse and density matter waves*, Nanostructures Spectroscopy Laboratory, Institute for Spectroscopy RAS (Head of the seminar Dr. Yu.E. Lozovik).
- 02/21/2012 *Tomographic representation of quantum mechanics*, Center for Photonics and Infrared Engineering, Bauman University (Head of the seminar is Dr. S.O. Yurchenko).
- 06/01/2011 *Probability representation of quantum states: quantum tomography*, Faculty of Fundamental Science, Bauman University (Head of the seminar Dr. A.N. Morozov).

## Public talks

- 06/07/2013 *Quantum information science*, Meeting of High School Students, Department of Computer Science & Control Systems, Bauman University.
- 04/24/2013 *Quantum physics for engineers*, Conference Dedicated to the 50th anniversary of the Evening Physics and Mathematics School at Bauman University, Bauman University.
- 11/15/2012 *Quantum optics and phase space*, Seminar of Optical Society of America Moscow Chapters "Optics and Everything-Everything-Everything", Lomonosov Moscow State University.
- 10/03/2012 *Quantum cryptography*, Second Moscow Science Festival, Bauman University.
- 08/10/2012 *Quantum tomograms and their application in quantum information science*, Quantum Lunch, Institute for Quantum Information Science, University of Calgary.

## Recommendations

1. **Prof. A.I. Lvovsky**, University of Calgary & Russian Quantum Center.  
[lvov@ucalgary.ca](mailto:lvov@ucalgary.ca)
2. **Prof. A.I. Ovseevich**, Institute for Problem in Mechanics, Russian Academy of Science.  
[ovseev@ipmnet.ru](mailto:ovseev@ipmnet.ru)
3. **Prof. Yu.E. Lozovik**, Institute for Spectroscopy, Russian Academy of Science.  
[lozovik@isan.troitsk.ru](mailto:lozovik@isan.troitsk.ru)
4. **Dr. S.O. Yurchenko**, Bauman University, Department of Physics.  
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4. **Dr. Ya.A. Kinderkneht**, Bauman University, Department of Mathematical Simulation.  
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