

CURRICULUM VITAE

Personal information

Personal details **Aleksey K. Fedorov**, November 1, 1993, [RQC personal web-page](#).
Contact details akf@rqc.ru, 100A Novaya St., Skolkovo, Moscow 143025, Russia.

Research experience

- Jul'17 – ... **Principal Applied Scientist**, [Russian Quantum Center](#), Quantum Information Technologies group, Theory of Quantum Communications and Quantum Software.
- Dec'17 – ... **Application Development Director**, [QRate — Russian Quantum Center Spin-off on Quantum Communications](#), Theory of Quantum Communications and Software.
- Oct'12 – Jun'17 **Intern/RQC Student Fellow/Junior Researcher**, [Russian Quantum Center](#), Quantum Optics & Many-body Theory groups, *Supervisor*: Prof. Georgy Shlyapnikov, *Point of Contact*: Prof. Alexander Lvovsky.
- Oct'12 – Jul'13 **Intern**, [Department of Physics, Bauman University](#), Condensed Matter Theory Group, *Supervisor*: Dr. Stanislav Yurchenko.
- Dec'10 – Jun'14 **Intern**, [Institute for Problem in Mechanics, Russian Academy of Sciences](#), Laboratory of Mechanics of Controlled Systems, *Supervisor*: Dr. Alexander Ovseevich.

Education

- Sept'15 – Jun'17 **PhD in Physics**, [Université Paris-Saclay, Laboratoire de Physique Théorique et Modèles Statistique \(LPTMS\), CNRS, Université Paris Sud XI](#), *Supervisor*: Prof. Georgy Shlyapnikov.
- Sept'09 – Jun'15 **MSc in Computer Science (summa cum laude)**, [Bauman Moscow State Technical University — Bauman University](#), Department of Computer Science & Control Systems, *Supervisor*: Dr. Yuri Kurochkin.

Professional activities

- Referee More that 10 journals including [Phys. Rev. Lett](#), [Phys. Rev. A](#), [Quantum Sci. Technol.](#), [Quant. Inf. Proc.](#), [Europhys. Lett](#); Elsevier Recognized Reviewer ([Phys. Lett. A](#), [Ann. Phys.](#), and [Phys. C](#)).
- Numbers H-Index: 11 ([Google Scholar](#)), Erdős number: 4.

Fellowships, scholarships, and awards

- 2016 Best Talk Award, “Young Physicists Conference”, [Moscow Physical Society](#), with A.V. Duplinskiy et. al.
- 2015 Best Poster Award, “Young Physicists Conference”, [Moscow Physical Society](#), with E.O. Kiktenko.
- 2015 Scholarship for students, [Imperial Moscow Technical School Club \(Alumni Club of the Bauman University\)](#).
- 2014 – 2015 Fellowship for students, [Dynasty Foundation](#).
- 2014 – 2015 Scholarship for students, [Russian Federation President](#).
- 2014 Scholarship for students, Scientific committee of the [Bauman University](#).
- 2013 – 2014 Scholarship for students, [Russian Federation Government](#).
- 2013 – 2015 Fellowship for students, [Russian Quantum Center](#).
- 2013 New Generation Award, [XV National Forum for Information Security “INFOFORUM 2013”](#).
- 2012 – 2013 Scholarship for Scientific Activities of Students, [Bauman University](#).
- 2012 Research Award for Students, [Institute for Problem in Mechanics RAS](#).
- 2011 – 2013 Best Talk Award, [Moscow Institute for Physics and Technology](#).
- 2011 – 2013 Award for Best Student Scientific Work on Theoretical Physics, [Bauman University](#).
- 2011 Best Poster Award, “Young Physicists Conference”, [Moscow Physical Society](#).
- 2009 – 2012 UNESCO Department Diploma, [Bauman University](#).
- 2009 Award for the Best Project in “Step into the Future, Moscow” program, [Bauman University](#).

Conferences and scientific schools organization

- 2019 **Organizing Committee Chair**, International School on Quantum Communications (Sochi, 18-24 February 2019), World-leading speakers from Russia, France, Switzerland, UK, and etc.
- 2018 **Program Committee Chair**, International Symposium on Many-body Physics and Quantum Technologies (Moscow, October 2018), Related in particular to the 70th birthday of birth of Gora Shlyapnikov.

Publications in peer-reviewed journals

- 38 N.A. Asriyan, I.L. Kurbakov, **A.K. Fedorov**, and Y.E. Lozovik. [Optical probing in a bilayer dark-bright condensate system](#), Physical Review B **99**, 085108 (2019); [arXiv:1811.08802](#).
- 37 **A.K. Fedorov**, I. Gerhardt, A. Huang, J. Jogenfors, Y. Kurochkin, A. Lamas-Linares, J.-A. Larsson, G. Leuchs, L. Lydersen, V. Makarov, and J. Skaar. [Comment on "Inherent security of phase coding quantum key distribution systems against detector blinding attacks" \[Laser Phys. Lett. 15, 095203 \(2018\)\]](#), Laser Physics Letters **16**, 019401 (2019); [arXiv:1809.03911](#).
- 36 A.K. Fedorov, E.O. Kiktenko, and A.I. Lvovsky. [Quantum computers put blockchain security at risk](#), Nature **563**, 465 (2018); [Altmetric: In the top 5% of all research outputs](#).
- 35 E.O. Kiktenko, A.O. Malyshev, A.A. Bozhedarov, N.O. Pozhar, M.N. Anufriev, and A.K. Fedorov. [Error estimation at the information reconciliation stage of quantum key distribution](#), Journal of Russian Laser Research **39**, 558 (2018); [arXiv:1810.05841](#).
- 34 **A.K. Fedorov**, E.O. Kiktenko, and A.S. Trushechkin. [Symmetric blind information reconciliation and hash-function-based verification for quantum key distribution](#), Lobachevskii Journal of Mathematics **39**, 992 (2018); [arXiv:1705.06664](#).
- 33 E.O. Kiktenko, N.O. Pozhar, M.N. Anufriev, A.S. Trushechkin, R.R. Yunusov, Y.V. Kurochkin, A.I. Lvovsky, and **A.K. Fedorov**. [Quantum-secured blockchain](#), Quantum Science and Technology **3**, 035004 (2018); [arXiv:1705.09258](#); Featured in [MIT Technology Review](#), [Phys.Org](#), [Forbes Russia](#), and etc. [Altmetric: The highest trending article from this journal](#). [Altmetric: In the top 5% of all research outputs](#).
- 32 **A.K. Fedorov** and A.I. Ovseevich. [Asymptotic control theory for a closed string](#), Russian Journal of Mathematical Physics **25**, 200–2019 (2018); [arXiv:1704.08623](#).
- 31 A.V. Duplinskiy, E.O. Kiktenko, N.O. Pozhar, M.N. Anufriev, R.P. Ermakov, A.I. Kotov, A.V. Brodskiy, R.R. Yunusov, V.L. Kurochkin, **A.K. Fedorov**, and Y.V. Kurochkin. [Quantum-secured data transmission in urban fibre-optic communication lines](#), Journal of Russian Laser Research **39**, 113 (2018); [arXiv:1712.09831](#); Featured in [Forbes Russia](#).
- 30 A. Farouk, J. Batle M. Elhoseny, M. Naseri, M. Lone, **A.K. Fedorov**, M. Alkhambashi, S.H. Ahmed, and M. Abdel-Aty. [Robust general \$N\$ user authentication scheme in a centralized quantum communication network via generalized GHZ states](#), Frontiers of Physics **13**, 130306 (2018).
- 29 A.S. Trushechkin, P.A. Tregubov, E.O. Kiktenko, Y.V. Kurochkin, and **A.K. Fedorov**. [Quantum-key-distribution protocol with pseudorandom bases](#), Physical Review A **97**, 012311 (2018); [arXiv:1706.00611](#).
- 28 E.O. Kiktenko, A.S. Trushechkin, C.C.W. Lim, Y.V. Kurochkin, and **A.K. Fedorov**. [Symmetric blind information reconciliation for quantum key distribution](#), Physical Review Applied **8**, 044017 (2017); [arXiv:1612.03673](#).
- 27 E.O. Kiktenko, N.O. Pozhar, A.V. Duplinskiy, A.A. Kanapin, A.S. Sokolov, S.S. Vorobey, A.V. Miller, V.E. Ustimchik, M.N. Anufriev, A.S. Trushechkin, R.R. Yunusov, V.L. Kurochkin, Y.V. Kurochkin, and **A.K. Fedorov**. [Demonstration of a quantum key distribution network in urban fibre-optic communication lines](#), Quantum Electronics **47**, 798–802 (2017); [arXiv:1705.07154](#).
- 26 A.S. Trushechkin, E.O. Kiktenko, and **A.K. Fedorov**. [Practical issues in decoy-state quantum key distribution based on the central limit theorem](#), Physical Review A **96**, 022316 (2017); [arXiv:1702.08531](#).
- 25 A.I. Ovseevich and **A.K. Fedorov**. [Asymptotically optimal control for a simplest distributed system](#), Doklady Mathematics **95**, 194–197 (2017); [arXiv:1612.01485](#).
- 24 **A.K. Fedorov**, V.I. Yudson, and G.V. Shlyapnikov. [P-wave superfluidity of atomic lattice fermions](#), Physical Review A **95**, 043615 (2017); [arXiv:1701.08520](#).
- 23 D.A. Kronberg, E.O. Kiktenko, **A.K. Fedorov**, and Y.V. Kurochkin. [Analysis of coherent quantum cryptography protocol vulnerability to an active beam-splitting attack](#), Quantum Electronics **47**, 163–168 (2017); [arXiv:1611.04112](#).
- 22 A.A. Popov, E.O. Kiktenko, **A.K. Fedorov**, and V.I. Man'ko. [Information processing using three-qubit and qubit-qutrit encodings of noncomposite quantum systems](#), Journal of Russian Laser Research **37**, 581–590 (2016); [arXiv:1610.05576](#).
- 21 A.B. Pnev, K.V. Stepanov, D.A. Dvoretzkiy, A.A. Zhirnov, E.T. Nesterov, S.G. Sazonkin, A.O. Chernutsky, **A.K. Fedorov**, C. Svelto, and V.E. Karasik. [Minimization of errors in narrowband laser phase noise measurements based on reference measurement channels](#), International Journal of Advanced Biotechnology and Research **7**, 1445–1451 (2016).
- 20 A.I. Ovseevich and **A.K. Fedorov**. [Damping of a system of linear oscillators using the generalized dry friction](#), Proceedings of the Steklov Institute of Mathematics **293**, S156–S165 (2016); [arXiv:1508.07775](#).

- 19 **A.K. Fedorov**, S.I. Matveenko, V.I. Yudson, and G.V. Shlyapnikov. [Novel \$p\$ -wave superfluids of fermionic polar molecules](#), *Scientific Reports* **6**, 27448 (2016); [arXiv:1601.03026](#).
- 18 E.O. Kiktenko, A.A. Popov, and **A.K. Fedorov**. [Bidirectional imperfect quantum teleportation with a single Bell state](#), *Physical Review A* **93**, 062305 (2016); [arXiv:1602.01420](#); Press Release: [RQC](#); Media: [Phys.org](#), [RIA News](#).
- 17 **A.K. Fedorov** and A.I. Ovseevich. [Asymptotic control theory for a system of linear oscillators](#), *Moscow Mathematical Journal* **16**, 561–598 (2016); [arXiv:1308.6090](#).
- 16 **A.K. Fedorov**, M.N. Anufriev, A.A. Zhirnov, K.V. Stepanov, E.T. Nesterov, D.E. Namiot, V.E. Karasik, and A.B. Pnev. [Gaussian mixture model for events recognition in optical time-domain reflectometry based sensing systems](#), *Review of Scientific Instruments* **87**, 036107 (2016); [arXiv:1509.05998](#).
- 15 E.O. Kiktenko, **A.K. Fedorov**, and V.I. Man'ko. [Teleportation in an indivisible quantum system](#), *Quantum Measurements and Quantum Metrology* **3**, 13–19 (2016); [arXiv:1512.05168](#); Press Release: [MIPT](#), [RQC](#); Media: [Phys.org](#), [EurekAlert!](#), [RIA News](#), [WIRED UK](#).
- 14 A.I. Ovseevich and **A.K. Fedorov**. [Feedback control for a system of linear oscillators](#), *Automation and Remote Control* **76**, 1905–1917 (2015); [arXiv:1509.06056](#).
- 13 **A.K. Fedorov**, M.N. Anufriev, A.A. Zhirnov, E.T. Nesterov, D.E. Namiot, A.B. Pnev, and V.E. Karasik. [Towards events recognition in a distributed fiber-optic sensor system: Kolmogorov-Zurbenko filtering](#), *International Journal of Open Information Technologies* **3**, 16–19 (2015); [arXiv:1509.05996](#).
- 12 **A.K. Fedorov** and A.I. Ovseevich. [Perturbation theory of observable linear systems](#), *Mathematical Notes* **98**, 216–221 (2015); [arXiv:1404.6901](#).
- 11 E.O. Kiktenko, **A.K. Fedorov**, A.A. Strakhov, and V.I. Man'ko. [Single qudit realization of the Deutsch algorithm using superconducting many-level quantum circuits](#), *Physics Letters A* **379**, 1409–1413 (2015); [arXiv:1503.01583](#); Press Release: [MIPT](#), [RQC](#); Media: [Phys.org](#), [EurekAlert!](#), [RIA News](#), [WIRED UK](#).
- 10 A.I. Ovseevich and **A.K. Fedorov**. [Motion of a system of oscillators under the generalized dry friction control](#), *Automation and Remote Control* **76**, 826–833 (2015); [arXiv:1505.00773](#).
- 9 I.A. Fedorov, **A.K. Fedorov**, Y.V. Kurochkin, and A.I. Lvovsky. [Tomography of a multimode quantum black box](#), *New Journal of Physics* **17**, 043063 (2015); [arXiv:1403.0432](#); Featured in [IOP Select 2015](#), [RQC Press Release](#).
- 8 E.O. Kiktenko, **A.K. Fedorov**, O.V. Man'ko, and V.I. Man'ko. [Multilevel superconducting circuits as two-qubit systems: Operations, state preparation, and entropic inequalities](#), *Physical Review A* **91**, 042312 (2015); [arXiv:1411.0157](#); Press Release: [MIPT](#), [RQC](#); Media: [Phys.org](#), [EurekAlert!](#), [RIA News](#), [WIRED UK](#).
- 7 **A.K. Fedorov**, E.O. Kiktenko, O.V. Man'ko, and V.I. Man'ko. [Tomographic discord for a system of two coupled nanoelectric circuits](#), *Physica Scripta* **90**, 055101 (2015); [arXiv:1409.5265](#).
- 6 **A.K. Fedorov**, I.L. Kurbakov, and Yu.E. Lozovik. [Roton-maxon spectrum and instability for weakly interacting dipolar excitons in a semiconductor layer](#), *Physical Review B* **90**, 165430 (2014); [arXiv:1403.3956](#).
- 5 **A.K. Fedorov**, I.L. Kurbakov, Y.E. Shchadilova, and Yu.E. Lozovik. [Two-dimensional Bose gas of tilted dipoles: Roton instability & condensate depletion](#), *Physical Review A* **90**, 043616 (2014); [arXiv:1407.6399](#).
- 4 E.O. Kiktenko and **A.K. Fedorov**. [Tomographic causal analysis of two-qubit states and tomographic discord](#), *Physics Letters A* **378**, 1704–1710 (2014); [arXiv:1309.4948](#).
- 3 **A.K. Fedorov**. [Feynman integral and perturbation theory in quantum tomography](#), *Physics Letters A* **377**, 2320–2323 (2013).
- 2 **A.K. Fedorov** and E.O. Kiktenko. [Quaternion representation and symplectic spin tomography](#), *Journal of Russian Laser Research* **34**, 477–487 (2013); [arXiv:1308.6549](#).
- 1 A.I. Ovseevich and **A.K. Fedorov**. [Asymptotically optimal feedback control for a system of linear oscillators](#), *Doklady Mathematics* **88**, 613–617 (2013); [arXiv:1611.09669](#).

Other publications

- 17 **A.K. Fedorov**, V.I. Yudson, and G.V. Shlyapnikov. [Superfluidity of identical fermions in an optical lattice: Atoms and polar molecules](#), *AIP Conference Proceedings* **1936**, 020022 (2018); [arXiv:1711.01849](#).
- 16 I.S. Kabanov, R.R. Yunusov, Y.V. Kurochkin, and **A.K. Fedorov**. [Practical cryptographic strategies in the post-quantum era](#), *AIP Conference Proceedings* **1936**, 020021 (2018); [arXiv:1703.04285](#).

- 15 **A.K. Fedorov**, A.A. Kanapin, V.L. Kurochkin, Y.V. Kurochkin, A.V. Losev, A.V. Miller, I.O. Pashinskiy, V.E. Rodimin, and A.S. Sokolov, [Educational potential of quantum cryptography and its experimental modular realization](#), Proceedings of the Scientific-Practical Conference “Research and Development – 2016”, 83 (2018); [arXiv:1710.08090](#).
- 14 A.O. Chernutsky, A.A. Zhirnov, **A.K. Fedorov**, E.T. Nesterov, K.V. Stepanov, Ya.A. Tezadov, E.V. Kondrashin, V.E. Karasik, and A.B. Pnev. [Phase-sensitive optical time-domain reflectometry with pulse mode EDFA: Probe pulse preparation](#), Proceedings of the 38th Progress In Electromagnetics Research Symposium, 2231 (2017); [arXiv:1612.03893](#).
- 13 **A.K. Fedorov** and A.I. Ovseevich. [Elements of asymptotic control theory for a closed string](#), Proceedings of the 8th International Conference on Physics and Control, IPACS Electronic Library (2017).
- 12 **A.K. Fedorov**. [Quantum key distribution networks and their applications for blockchain-based technologies](#), Journal of Lasers, Optics & Photonics **4**, 04005 (2017).
- 11 A. Zhirnov, M. Anufriev, N. Pozhar, K. Stepanov, A. Chernutsky, I. Makhrov, E. Nesterov, D. Shelestov, K. Koshelev, **A. Fedorov**, V. Karasik, and A. Pnev. [Multipurpose monitoring system for icebreakers: Development, implementation, and testing](#), MATEC Web of Conferences **75**, 04005 (2016).
- 10 E.O. Kiktenko, A.S. Trushechkin, Y.V. Kurochkin, and **A.K. Fedorov**. [Post-processing procedure for industrial quantum key distribution systems](#), Journal of Physics: Conference Series **741**, 012081 (2016); [arXiv:1603.08387](#).
- 9 **A.K. Fedorov**, V.A. Lazarev, I.P. Makhrov, N.O. Pozhar, M.N. Anufriev, A.B. Pnev, and V.E. Karasik. [Structural monitoring system with fiber Bragg grating sensors: implementation and software solution](#), Journal of Physics: Conference Series **594**, 012049 (2015); [arXiv:1412.5838](#).
- 8 **A.K. Fedorov** and E.O. Kiktenko. [Mutual information-energy inequality for thermal states of a bipartite quantum system](#), Journal of Physics: Conference Series **594**, 012045 (2015); [arXiv:1412.5812](#).
- 7 K.I. Zaytsev, I.N. Fokina, **A.K. Fedorov**, and S.O. Yurchenko. [Sensing of phase transition in medium with terahertz pulsed spectroscopy](#), Journal of Physics: Conference Series **486**, 012024 (2014).
- 6 A.I. Ovseevich and **A.K. Fedorov**. [Asymptotically optimal feedback control for a system of linear oscillators](#), AIP Conference Proceedings **1570**, 257 (2013).
- 5 **A.K. Fedorov** and S.O. Yurchenko. [Quantum tomograms and their application in quantum information science](#), Journal of Physics: Conference Series **414**, 012040 (2013).
- 4 **A.K. Fedorov**, I.L. Kurbakov, and Yu.E. Lozovik. [Roton instability and phonon collapse of two-dimensional tilted dipole atoms](#), Journal of Physics: Conference Series **414**, 012036 (2013).
- 3 A.I. Ovseevich and **A.K. Fedorov**. [Feedback bounded control for a system of oscillators](#), Vestnik of Lobachevsky State University of Nizhni Novgorod **1**, 278–283 (2013) [In Russian].
- 2 V.I. Litun, V.N. Mitrokhin, and **A.K. Fedorov**. [Phase delay distribution in dome lens antenna with displaced feed array](#), IEEE Proceedings, Catalog Number CFP12788-PRT (2012).
- 1 **A.K. Fedorov** and S.O. Yurchenko. [Symplectic tomograms presented through Feynman path integrals](#), Herald of the Bauman Moscow State Technical University **45**, 29–37 (2012) [In Russian].

Preprints

- 2016 A.S. Sokolov A.V. Miller, A.A. Kanapin, V.E. Rodimin, A.V. Losev, A.S. Trushechkin, E.O. Kiktenko, N.O. Pozhar, **A.K. Fedorov**, V.L. Kurochkin, and Y.V. Kurochkin. Modular quantum key distribution setup for research and development applications, [arXiv:1612.04168](#).
- 2016 A.A. Zhirnov, **A.K. Fedorov**, K.V. Stepanov, E.T. Nesterov, V.E. Karasik, C. Svelto, and A.B. Pnev. Effects of laser frequency drift in phase-sensitive optical time-domain reflectometry fiber sensors, [arXiv:1604.08854](#).

Invited talks and lectures

- 20/03/2019 *Entanglement frontier: Quantum technologies*. **A.K. Fedorov**. Invited Lecture, [Peter the Great St.Petersburg Polytechnic University](#), Saint-Petersburg, Russia.
- 05/03/2019 *Quantum technologies: From ideas to applications*. **A.K. Fedorov**. Plenary talk at the [International Exhibition for Laser, Optical and Optoelectronic Technologies “Photonics”](#), Moscow, Russia.
- 19/02/2019 *Classical and quantum cryptography*. **A.K. Fedorov**. Invited Lectures, [International School on Quantum Communications](#), Sirius Educational Center, Sochi, Russia.
- 25/12/2018 *Quantum technologies: From small particles to great opportunities*. **A.K. Fedorov**. Colloquium, [National Research Tomsk State University](#), Tomsk, Russia.

- 07/11/2018 *Quantum-safe cryptography activities in Russia.* **A.K. Fedorov.** [ETSI / IQC Quantum Safe Workshop](#), Beijing, China.
- 22/10/2018 *Novel applications for quantum key distribution networks.* **A.K. Fedorov.** [Westlake Institute for Advanced Studies](#), Westlake University, Hangzhou, China.
- 17/10/2018 *QRate project: Information security in the post-quantum era.* **A.K. Fedorov.** [Open Innovation Forum 2018](#), Moscow, Russia.
- 05/10/2018 *Supersolidity and superfluidity in ultracold quantum gases.* **A.K. Fedorov.** [International Symposium on Many-body Physics and Quantum Technologies, Related in particular to the 70th anniversary of birth of Gora Shlyapnikov](#), Moscow, Russia.
- 03/10/2018 *Quantum networks: Long-standing problems and novel applications.* **A.K. Fedorov.** [Theoretical Seminar, Prokhorov General Physics Institute, Russian Academy of Sciences](#), Moscow, Russia.
- 11/09/2018 *Machine learning with noisy intermediate-scale quantum devices.* **A.K. Fedorov.** [International Conference on Quantum Technologies "PhysTech Quant"](#), Moscow, Russia.
- 14/08/2018 *Quantum technologies: From small particles to great opportunities.* **A.K. Fedorov.** [Acronis TechTalk at PhysTech Park](#), Moscow, Russia.
- 31/07/2018 *Machine learning with noisy intermediate-scale quantum devices.* **A.K. Fedorov.** [Superconducting Quantum Technologies](#), Moscow, Russia.
- 26/07/2018 *Quantum-secured blockchain.* **A.K. Fedorov.** Invited Lecture, [Summer School on Distributed Ledgers](#), Financial University under the Government of the Russian Federation, Moscow, Russia.
- 14/07/2018 *Quantum technologies: From small particles to great opportunities.* **A.K. Fedorov.** Invited Lecture, University 20.35, Vladivostok, Russia.
- 24/05/2018 *Quantum technologies: From small particles to great opportunities.* **A.K. Fedorov.** Invited Lecture, [SPIEF 2018](#), Saint Petersburg, Russia.
- 08/05/2018 *Introduction to quantum technologies.* **A.K. Fedorov.** Invited Lecture, [Yandex Data School & Moscow Institute of Physics and Technology Course on Cryptography](#), Moscow, Russia.
- 26/04/2018 *From barrels to bytes: Digital transformation of oil and gas industries.* **A.K. Fedorov.** Invited Lecture, Business Breakfast "Digital Oil", [Sberbank CIB](#), Moscow, Russia.
- 23/04/2018 *Quantum technologies: Small particles for big challenges.* **A.K. Fedorov.** Invited Lecture, [QIWI](#), Moscow, Russia.
- 02/04/2018 *Quantum blockchain.* **A.K. Fedorov.** Colloquium, [Department of Quantum Technologies, Moscow Institute of Physics and Technology](#), Moscow, Russia.
- 26/03/2018 *Quantum technologies: Small particles for big challenges.* **A.K. Fedorov.** Edutainment Talk Series, [Intel Russia](#), Moscow, Russia.
- 02/03/2018 *Quantum networks: Long-standing problems and novel applications.* **A.K. Fedorov.** [The Thirty Sixth Lecture in Open Russian Quantum Center Colloquium](#), Moscow, Russia.
- 13/02/2018 *Cutting-edge IT-applications in the quantum infrastructure.* **A.K. Fedorov.** [Russian Quantum Center & Helmholtz Association International Forum "Development of Quantum Technologies: Global changes, national approaches, and common solutions"](#), Berlin, Germany.
- 07/02/2018 *Quantum key distribution networks and their applications for blockchain technologies.* **A.K. Fedorov.** [Special Seminar at Max-Planck-Institute for Quantum Optics](#), Garching, Germany.
- 09/11/2017 *Quantum revolution: Small particles for big challenges.* **A.K. Fedorov.** [WHD.Moscow — World Hosting Days](#), Moscow, Russia.
- 27/10/2017 *Threats from quantum computing for the blockchain industry.* **A.K. Fedorov.** [Russian Blockchain Week](#), Moscow, Russia.
- 16/10/2017 *Development of industrial quantum key distribution devices.* **A.K. Fedorov.** [Open Innovation Forum 2017](#), Moscow, Russia.
- 14/10/2017 *Quantum-secured blockchain.* E.O. Kiktenko, N.O. Pozhar, M.N. Anufriev, A.S. Trushechkin, R.R. Yunusov, Y.V. Kurochkin, A.I. Lvovsky, and **A.K. Fedorov.** [Quantum Summit 2017](#), Chengdu, China.
- 26/09/2017 *Quantum key distribution networks and their applications for blockchain-based technologies.* **A.K. Fedorov.** [The Second International Conference on Quantum Physics and Quantum Technology](#), Berlin, Germany.
- 15/09/2017 *Efficient key distillation for industrial quantum key distribution systems.* **A.K. Fedorov.** [ETSI / IQC Quantum Safe Workshop](#), London, UK.

- 12/07/2017 *Quantum-secured blockchain*. E.O. Kiktenko, N.O. Pozhar, M.N. Anufriev, A.S. Trushechkin, R.R. Yunusov, Y.V. Kurochkin, A.I. Lvovsky, and **A.K. Fedorov**. [The Fourth International Conference on Quantum Technologies](#), Moscow, Russia.
- 10/06/2017 *Digital economy in the post-quantum era*. **A.K. Fedorov**. [CEMS White Nights 2017](#), Graduate School of Management, Saint Petersburg State University, Saint Petersburg, Russia.
- 06/06/2017 *RQC project on quantum cryptography: State-of-the-art and progress*. **A.K. Fedorov**. Session “Quantum cryptography in Russia: from theory to practice”. [The 6th Workshop on Current Trends in Cryptology](#), Saint Petersburg, Russia.
- 23/03/2017 *Advanced post-processing procedure for industrial QKD systems*. **A.K. Fedorov**. British-Russian Workshop on Quantum Technologies, Lebedev Physical Institute, Moscow, Russia.
- 18/03/2017 *Quantum computing: A big boosting game*. **A.K. Fedorov**. Colloquium “Quantum World”, Data Science, Yandex, Moscow, Russia.
- 08/11/2016 *Quantum key distribution: basics and classical post-processing*. E.O. Kiktenko, A.S. Trushechkin, and **A.K. Fedorov**. Colloquium “Mathematical methods of cryptanalysis”, Faculty of Computational Mathematics and Cybernetics, Lomonosov Moscow State University, Moscow, Russia.
- 13/07/2016 *Novel p -wave superfluids of fermionic polar molecules*. **A.K. Fedorov**, S.I. Matveenko, V.I. Yudson, and G.V. Shlyapnikov. [The 25th Annual International Laser Physics Workshop](#), Yerevan, Armenia.
- 13/07/2016 *Events recognition in optical time-domain reflectometry based sensing systems*. **A.K. Fedorov**, M.N. Anufriev, A.A. Zhirnov, K.V. Stepanov, E.T. Nesterov, D.E. Namiot, V.E. Karasik, and A.B. Pnev. [The 25th Annual International Laser Physics Workshop](#), Yerevan, Armenia.
- 06/06/2016 *Post-processing procedure for industrial quantum key distribution systems*. E.O. Kiktenko, A.S. Trushechkin, R.U. Valiev, Y.V. Kurochkin, and **A.K. Fedorov**. [The 5th Workshop on Current Trends in Cryptology](#), Yaroslavl, Russia.
- 18/01/2016 *Novel p -wave superfluids of fermionic polar molecules*. **A.K. Fedorov**. [PhD Days at the Laboratoire de Physique Théorique et Modèles Statistique \(LPTMS\)](#), Orsay, France.
- 21/09/2015 *Roton phenomena of weakly interacting dipolar excitons in a semiconductor layer*. **A.K. Fedorov**. [Collective electronic excitations in 2D — Final conference of the INDEX project](#), Pisa, Italy.
- 07/07/2014 *Perturbation theory of observable linear systems and asymptotic control theory*. **A.K. Fedorov** and A.I. Ovseevich. [International Conference “Mathematics Days in Sofia”](#), Sofia, Bulgaria.
- 17/06/2014 *Generalized dry-friction-type control for a system of oscillators*. A.I. Ovseevich and **A.K. Fedorov**. [XII All-Russian Conference on Control Problems](#), Moscow, Russia.
- 02/06/2014 *Quantum cryptography: RQC project*. **A.K. Fedorov**. Digital security, personal data security, biometrics. [Startup Village](#), Skolkovo, Moscow, Russia.
- 15/04/2014 *From approximate reachable sets to asymptotic control theory*. **A.K. Fedorov** and A.I. Ovseevich. [International Youth Conference “Geometry & Control”](#), Moscow, Russia.
- 29/10/2013 *Quantum tomography: State-of-the-art and perspectives*. **A.K. Fedorov**. Colloquium, [Department of Physics, Bauman University](#), Moscow, Russia.
- 22/10/2013 *2D and 1D systems with the dipole-dipole interaction*. **A.K. Fedorov**. Colloquium, [Department of Physics, Bauman University](#), Moscow, Russia.
- 17/01/2013 *Feedback control for a system of linear oscillators*. A.I. Ovseevich and **A.K. Fedorov**. Seminar “Control theory and dynamics of systems” of academician F.L. Cherous'ko, [Institute for Problem in Mechanics RAS](#), Moscow, Russia.
- 15/11/2012 *Quantum optics in the phase space*. **A.K. Fedorov**. Colloquium of Optical Society of America Chapters “Optics and Everything-Everything-Everything”, Lomonosov Moscow State University, Moscow, Russia.
- 03/10/2012 *Quantum cryptography: From Enigma to RSA and quantum computers*. **A.K. Fedorov**. Second Moscow Science Festival at the Bauman University, Moscow, Russia.
- 10/08/2012 *Quantum tomograms and their application in quantum information science*. **A.K. Fedorov**. Colloquium “Quantum Lunch”, Institute for Quantum Information Science, University of Calgary, Calgary, Canada.
- 01/06/2010 *Probability representation of quantum states: Quantum tomography*. **A.K. Fedorov**. Colloquium, [Department of Physics, Bauman University](#), Moscow, Russia.

Research visits

Dec'13 – Jan'14 **Visiting Scholar**, [Department of Physics, Harvard University](#),
[Condensed Matter Theory Group](#), Supervisor: [Prof. Eugene Demler](#).

Jul'12 – Aug'12 **Visiting Research Associate**, *Department of Physics and Astronomy, University of Calgary, Institute for Quantum Science and Technology*, Supervisor: Prof. Alexander Lvovsky.

Teaching experience

- 2018 **Teaching**, *Lecture course “Quantum Technologies for Industry: Computing and Communications”*.
- 2016 – 2017 **Teaching**, *co-chairman of Lecture course “Quantum cryptography” at Steklov Mathematical Institute*.
- 2011 – 2013 **Teaching**, *Lecture course “General physics”, Evening school at Bauman University*.
- 2012 – 2013 **Supervising**, *co-supervisor in high school research projects at “Step into the Future, Moscow”*.
- 2013 **Teaching**, *RQC quantum physics classes for high school students*.
- 2012 **Teaching**, *Lecture course “Cryptography and steganography”, Bauman University*.

Popular articles

- 2018 **A.K. Fedorov**. Quantum Revolution in [Forbes Latvia](#).
- 2018 **A.K. Fedorov** and R.Y. Yunusov. [Will Russia Create a First Quantum Computer?](#) in [Forbes Russia](#).
- 2018 **A.K. Fedorov**. [How New Google’s Quantum Computer Will Change the World?](#) in [Forbes Russia](#).
- 2014 **A.K. Fedorov** and R.Y. Yunusov. [How Quantum Sensors Will Change the World?](#) on [Engineering.com](#).

References

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