

Aiham Rostom

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📍 UAE, Sharjah

🎓 Ph.D. in physics.
🌐 Arabic, English, Russian.

🔗 Google Scholar, ORCID



Experience

- 🏢 **Visiting Assistant Professor.** University of Sharjah. 08/2026- to present.
- 🏢 **Assistant Professor.** Novosibirsk State University. 02/2023- 08/2026.
Developed and taught advanced graduate-level courses in quantum information and metrology (sensing); conducted both independent and collaborative research, and supervised graduate students, including computer science students.
- 🏢 **Researcher.** Russian Academy of Science (IAE institute). 11/2022- 08/2026.
Designed 5 novel protocols for quantum communication and cryptography, atomic gyroscope and optical sensors.
- 🏢 **Junior Researcher.** Novosibirsk State University. 11/2018- 02/2023.
Instructed 2 courses and conducted research works on quantum technologies, workshops and seminars.
- 🏢 **Teaching Assistant.** Tishreen University (Lattakia University). 11/2012- 11/2014.
Assisted in teaching of 4 lab courses and assessments of over 200 students per semester.

Education

- 🎓 **Ph.D. (Dissertation Defense).** Novosibirsk State University. 10/2022.
Quantum Optics and Quantum Information Science.
Thesis: Non-standard optical manifestations of the quantum geometric phase, [Link here](#)
- 🎓 **Ph.D. (coursework and research phase).** Novosibirsk State University. 06/2017- 06/2021.
Quantum Optics and Quantum Information Science.
- 🎓 **Master of science.** Novosibirsk State University. 09/2015- 06/2017.
Physics of Non-equilibrium Processes.
- 🎓 **Bachelor of science.** Tishreen University (Lattakia University). 09/2007- 11/2011.
General Physics.

Certification

- 🌟 Characteristics of Physics Education for Undergraduate Students in Higher Education Institutions. 2023.
Novosibirsk State University.

Skills

- 🌐 **Languages.** Arabic: Native, English: Excellent, Russian: Excellent.
- 💻 **Computer Skills.** Wolfram, c++, Python programming languages. Excel, Word, PowerPoint and $\text{\LaTeX}$.

Publications

- A. Rostom**, S. Haddadi, V. Tomilin. Phase-Driven Precision Boost in Quantum Compression for Postselected Metrology. [Physical Review Research \(2026\)](#).
- V Tomilin, **A Rostom**, L Il'ichev. Geometric Phase of the Two-Particle Bethe Wavefunction. [JETP Letters \(2026\)](#).
- V. Tomilin, **A. Rostom**, L. Il'ichov. Biphotons propagation through a thin lens: A Bogoliubov transformation approach. [Optics Communications \(2025\)](#).

4. V. Tomilin, **A. Rostom**, L. Il'ichov. On the accuracy of measuring the initial size of a biphoton. [Bulletin of the Lebedev Physics Institute \(2025\)](#).
5. V. Tomilin, **A. Rostom**, L. Il'ichov. Analysis of Quantum Advantage in the Problem of Random Search/Antisearch of Two Partners on an Infinite Plane. *Journal of Experimental and theoretical physics*, 2025.
6. **A. Rostom**, L. Il'ichov. Secure sharing of one-sided quantum randomness using entangled coherent states. [Quantum Information Processing \(2024\)](#).
7. **A. Rostom**, V. Tomilin, L. Il'ichov. Geometric model of quantum navigation during (anti-)search on a plane. [Chinese Journal of Physics \(2024\)](#).
8. V. Tomilin, **A. Rostom**, L. Il'ichov. Barrier-well Potential Configuration for Quantum Gyroscope Based on Atomic BEC Geometric Phase. [JETP Letters \(2024\)](#).
9. **A. Rostom**, V. Tomilin, L. Il'ichov. Quantum Correlations in Collective Strategies of Mutual Search/Anti-Search for Three Parties. [JETP Letters \(2024\)](#).
10. **A. Rostom**, V. Tomilin, L. Il'ichov. Geometric phase as a basis for quantum accelerometry. [JETP Letters \(2024\)](#).
11. **A. Rostom**. Essential role of destructive interference in the gravitationally induced entanglement. [Fortschritte der Physik \(2023\)](#).
* Picked up by news outlets ([Advanced Science News](#))
12. **A. Rostom**, V. Tomilin, L. Il'ichov. Geometric phase-mediated quantum gyroscope. [Journal of Experimental and Theoretical Physics \(2022\)](#).
13. **A. Rostom**. Optimal settings for amplification and estimation of small effects in postselected ensembles. [Annalen der Physik \(Berlin\) \(2022\)](#).
* Featured on the cover of ([Ann. Phys. 1/2022](#))
14. A. Shepelin, **A. Rostom**, V. Tomilin, L. Il'ichov. Multiworld motives by closed time-like curves. [Journal of Physics Conference Series \(2021\)](#).
15. **A. Rostom**. Interference in between the acts of pre- and post-selection. [Quantum Electronics \(2020\)](#).
16. T. Yakovleva, **A. Rostom**, V. Tomilin, L. Il'ichov. Geometric phase for “dark” subspaces in coherent population trapping. [Modern Physics Letters B \(2020\)](#).
17. T. Yakovleva, **A. Rostom**, V. Tomilin, L. Il'ichov. Quantum geometric phase under pre- and post-selection. [Quantum Electronics \(2019\)](#).
18. T. Yakovleva, **A. Rostom**, V. Tomilin, L. Il'ichov. Geometric phase transferred from photonic mode to atomic BEC. [Optics Communications \(2019\)](#).
19. T. Yakovleva, **A. Rostom**, V. Tomilin, L. Il'ichov. Geometric phase in open quantum system as a function of its history. [Quantum Studies: Mathematics and Foundations \(2019\)](#).
20. G. Sukhinin, A. Fedoseev, M. Salnikov, **A. Rostom**, M. Vasiliev, O. Petrov. Plasma anisotropy around a dust particle placed in an external electric field. [Physical Review E \(2017\)](#).
21. G. Sukhinin, M. Salnikov, A. Fedoseev, **A. Rostom**. Plasma polarization and wake formation behind a dust particle in an external electric field. [IEEE Transactions on Plasma Science \(2017\)](#).

Conferences and workshops

1. L. Il'ichov, V. Tomilin, **A. Rostom**. Quasigravity instead of pseudo-telepathy: a geometric model of quantum navigation in (anti)search on a plane. Moscow, Russia (2025).
2. V. Tomilin, **A. Rostom**, L. Il'ichov. Geometric phase as a basis for quantum accelerometry. Physics of ultra-cold atoms. Novosibirsk, Russia (2024).
3. **A. Rostom**, L. Il'ichov. Prompt detection of eavesdropping in quantum key distribution using quantum coherent states. Physics of ultra-cold atoms. Novosibirsk, Russia (2023).

4. **A. Rostom.** Essential role of destructive interference in Bose-Marletto-Vedral experiment. It from Qubit Conference. Perimeter Institute for Theoretical Physics, Canada (2023).
5. **A. Rostom.** High-precision measurement via entangling single photons. VII International Conference on Quantum Technologies. Russian Quantum Center, Russia (2023).
6. **A. Rostom.** Third Kyoto Workshop on Quantum Information, Computation, and Foundation, Japan (2022).
7. **A. Rostom.** Beyond the weak value: optimal postselected quantum metrology. Workshop on structured light and its applications. Friedrich Schiller University Jena, Germany (2022).
8. L. Il'ichov, **A. Rostom**, A. Shepelin, V. Tomilin. Multiworld motives by closed time-like curves. XXII International Scientific Conference: Physical Interpretations of Relativity Theory. Moscow, Russia (2021).
9. **A. Rostom.** "Detection of weak 'two-photon' cross-Kerr nonlinearity using the two state vector formalism of quantum mechanics". Physics of ultra-cold atoms. Novosibirsk, Russia (2020).
10. **A. Rostom.** Interference in between the acts of pre- and post-selection. Physics of ultracold atoms. Novosibirsk, Russia (2019).
11. T. Yakovleva, **A. Rostom**, V. Tomilin, L. Il'ichov. Geometric phase as a measurement history function. 20th Anniversary of Superconducting Qubits: progress and future directions. Tsukuba, Japan (2019).
12. V. Tomilin, T. Yakovleva, **A. Rostom**, L. Il'ichov. Geometric phase in non-standard settings. Modern problems of laser physics. Novosibirsk, Russia (2018).
13. T. Yakovleva, **A. Rostom**, V. Tomilin, L. Il'ichov. Geometric phase transferred from photonic mode to atomic BEC. Physics of ultra-cold atoms. Novosibirsk, Russia (2018).
14. **A. Rostom**, G. Sukhinin. Charging of plasma's dust grains of non-spherical forms in an external electric field. ISSC-2017: Physics of continuous media. Novosibirsk, Russia (2017). (In russian)
15. G. Sukhinin, M. Salnikov, A. Fedoseev, **A. Rostom**. Plasma polarization and wake formation behind a dust particle in an external electric field. PLTP-2017: Physics of low temperature plasma. Almaty, Kazakhstan (2017). (In russian)