CURRICULUM VITAE

Name: Khrystyna Gnatenko
Born: July 14, 1991, Zolochiv, Lviv region, Ukraine
Nationality: Ukraine Adress:
Department for Theoretical Physics, 12 Drahomanov St.,
Lviv, 79005, Ukraine
E-mail: khrystyna.gnatenko@gmail.com
Webpage https://physics.lnu.edu.ua/en/employee/gnatenko-kh
ORCID: https://orcid.org/0000-0003-2801-5872
Google scholar: https://scholar.google.com.ua/citations?user=2W2w7pEAAAAJ&hl=uk&oi=ao
Scopus: https://www.scopus.com/authid/detail.uri?authorId=55907971100
Phone: +380996698725 (mobile) +380322394183 (work)
LinkedIn https://www.linkedin.com/in/khrystyna-gnatenko-376064238/
Facebook https://www.facebook.com/khrustya.hnatenko

Education and Scientific degrees:

• 2020 - Doctor of Physical and Mathematical Sciences “Influence of space quantization on the properties of classical and quantum systems” (Academic Council D35.051.09 Ivan Franko National Unoversity of Lviv). Scientific consultant: Prof. Tkachuk V. M. PhD in Theoretical Physics.

• PhD studies, Ivan Franko National University of Lviv, 2013-2016, October 20, 2016 thesis defenses “One- and many-particle problems in noncommutative space” Supervisor: Prof. Tkachuk V. M.

MASTER OF PHYSICS, Ivan Franko National University of Lviv, 2011-2013. Graduation with Distinction.

MASTER OF MUSIC ARTS, VIOLIN, Mykola Lysenko Lviv National Music Academy, 2011-2012. Graduation with Distinction.

Scientific and teaching work:

• From June 2022 to present – Professor at the Professor Ivan Vakarchuk Department for Theoretical Physics Ivan Franko National University of Lviv;

• From 2023 vice-president of Lviv Junior Academy of Sciences of Ukraine;

• From September 2020 to May 2022 – Docent (Associate Professor) at the Professor Ivan Vakarchuk Department for Theoretical Physics Ivan Franko National University of Lviv;

• From November 2017 to present Senior Researcher at the Department for Theoretical Physics Ivan Franko National University of Lviv; leader of the project “Astrophysical systems on different energy and space-time scales and effects of space quantization” (No. 0117U007190) from the Ministry of Education and Science of Ukraine

• From November 2017 to December 2020 Senior Researcher at the Department for Theoretical Physics Ivan Franko National University of Lviv; leader of the project “Astrophysical systems on different energy and space-time scales and effects of space quantization” (No. 0117U007190) from the Ministry of Education and Science of Ukraine,

• From September 2017 to May 2018, form September 2018 to January 2019, from February 2019 to June 2019, from September 2019 to December 2019, from February

2020 to May2020 – Docent (Associate Professor) at the Department for Theoretical Physics Ivan Franko National University of Lviv;

- From August 2017 to September 2017 – Researcher at the Department for Theoretical Physics Ivan Franko National University of Lviv;
- From November 2016 to August 2017– Assistant at the Department for Theoretical Physics Ivan Franko National University of Lviv.

Teaching courses: Quantum mechanics, Quantum mechanics and elements of quantum information, Quantum Programming, Quantum Information, Quantum algorithms and quantum supremacy, Fundamental problems of Qauntum Mechanics, New problems of Quantum Mechanics and others. Research interests: quantum information and quantum computers, fundamental problems of quantum mechanics; quantized space; deformed Heisenberg, zeros of the partition function.

Leadership and participation in research projects

- 2021 to present leader of the project “Evolution of matter in the Universe and space quantization at the Planck Scale” (2021-2023) No. 0121U100058 from the Ministry of Education and Science of Ukraine.
- 2022 to present responsible member of the project “Classical and quantum systems at different space-time scales and influence of space quantization on their properties” (2022-2024) No. 0122U001558 from the Ministry of Education and Science of Ukraine.
- 2020 to present member of the project “Studies of physical systems and effects of space quantization on quantum computers” (2020-2022) No. 0120U104801 from the National Research Foundation of Ukraine.
- 2017-2020 — leader of the project “Astrophysical systems on different energy and space-time scales and effects of space quantization”, (2017-2020) No. 0117U007190 from the Ministry of Education and Science of Ukraine.
- 2019 — leader of the project “Fundamental problems of quantum space theory”, President’s of Ukraine grant for competitive projects 2019, No. 0119U103196.
- 2018 — leader of the project “Physical systems in quantum space”, President’s of Ukraine grant for competitive projects 2018, No. 0118U005226.
- 2017 — member of project "Structure and Evolution of Complex Systems with Applications in Physics and Life Sciences" approved by the European Commissions 7th Framework Programme Grant Agreement Number: PIRSES-GA-2013-612669.
- 2017-2018 — member of the project "Concept of complex networks in problems of quantum physics and cosmology" from State Found for Fundamental Research, No. 0117U003869, 0116U001539.
- 2015-2016 — member of the project "Classical and quantum systems outside standard approaches: electrodynamics in higher-dimensional spaces" from State Found for Fundamental Research, 0115U004838, 0115U005055.
- 2019-2021 — member of the project "Quantum effects in physics of one- and many-particle systems in a space with complicated structure", (No. 0119U002203) from the Ministry of Education and Science of Ukraine.
- 2016-2018 — member of the project "Classical and quantum systems with nonstandard commutation relations and statistics", (No. 0116U001539) from the Ministry of Education and Science of Ukraine.

Honours and awards:
2023 Ukrainian L'ORÉAL-UNESCO Award "For Women in Science" 2023
2021 Verkhovna Rada of Ukraine Award for Young Scientists in 2021 for the work "Description of space quantization using deformed algebras with preservation of fundamental physical principles and the upper bound for the minimal length"
2020 – 2022 Stipendium of Government of Ukraine for young researches.
2016 – Prize of President of Ukraine for scientific work “Physical systems and their evolution from the Planck scale up to the scale of the Universe ” (M. M. Stetsko O. M. Sergijenko, A. R. Kuzmak, Kh. P. Gnatenko)
2018 – 2020 Stipendium of Government of Ukraine for Young Research.
2019 – Award of Institute for Condensed Matter Physics in the field of statistical physics and theory of condensed matter for young researchers for the work “Effect of space quantization on the properties of many-particle systems”
2019 – Stipendium of Lviv system of researchers, created by the Lviv City Council within the framework of the" Scientific Lviv" program;
2016 – Award of Lviv Regional State Administration and Lviv Regional Council
2016 – Award of Institute for Condensed Matter Physics in the field of statistical physics and theory of condensed matter for young researchers for the work “One- and many-particle systems in a space with canonical noncommutativity of coordinates”.

Author of 124 publications, including **2** monographs, **1** tutorial for students, **53** articles (among them 44 articles are published in journals that are indexed by Scopus), **61** abstracts, **2** proceedings of schools, **5** popular science articles.
A list of all publications is available at
http://www.ktf.franko.lviv.ua/cgibin/KTF/select.cgi?%C3%ED%E0%F2%E5%ED%EA%EE%20%D5.|Gnatenko%20K

The main educational courses at Ivan Franko National University of Lviv
Quantum mechanics and quantum information, Quantum programming, quantum algorithms and quantum supremacy, Quantum algorithms and quantum music, Quantum machine learning, New problems of quantum mechanics, Nature of music from classical to quantum, and others.

Academic Visits:
- Faculty of Physics, Astronomy, and Applied Computer Science, Jagiellonian University, May 2023 (Erasmus+ program).
- Faculty of Physics and Astronomy, University of Zielona Góra, March 2022, June 2023 (Erasmus+ program).
- Faculty of Physics, University of Vienna, Vienna, Austria, December 2017 (Stipendien Lemberg, OeAD);
- Institute of Theoretical Physics, University of Wroclaw, Wroclaw, Poland, April 2015.
- Theoretical Physics 4, University of Würzburg , Würzburg , Germany , December 2014 (grant, Deutscher Akademischer Austauschdienst).
- Institute of Theoretical Physics, University of Wroclaw, Wroclaw, Poland, April 2013.

- DESY summer student program, data analysis project with Peter Vankov and Tiago Perez, from the ATLAS experiment, Hamburg, Germany, 2012.

Participation in conferences (the last main events)

1. XV Symposium KCIK-ICTQT on Quantum Information (16-18 May 2024, Sopot, Poland); (invited talk).
2. 3d Swedish-Ukrainian seminar in theoretical physics, May 28, 2024 (invited talk);
3. European Conference Quantum Technologies for Defence Current and future capabilities13-14 March 2024, Warsaw, Poland (invited talk).
4. Symposium 'Rebuilding Scientific Infrastructure in Ukraine'. 11 March 2024, UNESCO Headquarters in Paris (invited talk).
5.US-Ukraine Quantum Forum 2023, August 28–31, 2023 https://usuaqforum.github.io/
6. QWorld: Quantum Science Days. The third scientific meeting organized by QWorld (May 29-31, 2023 Online): https://qworld.net/qscience-days-2023/
7. International conference Quantum Techniques in Machine Learning 2022, Naples, Italy.
8. 3rd International conference on innovative materials and nanoengineering, November 10-13, 2023, Dovgoluka, Ukraine.1https://imne.lpnu.ua/ (invited speaker)
9. 14th Workshop on Current Problems in Physics, 24-27 October 2022, Zielona Góra, Poland. http://surl.li/pgitk (invited talk)
10. XIV Symposium KCIK-ICTQT on Quantum Information, 18-20 May 2023, Sopot, Poland (invited talk

Experience of reviewing and examination

From July 2024 to present scientific editor of section General Physics of Ukrainianr Journal of Physics (Scopus, Web of Science);

- Vice-chairman of the section New technologies of development: transport system, including smart, green and integrated transport; rocket and space industry, aerospace and shipbuilding; armaments and military equipment; research on the most important problems of nuclear physics, radio physics and astronomy "of the Expert Council of the Ministry of Education and Science on examination of projects of scientific works and scientific and technical (experimental) developments of young scientists.

Reviewer of articles for journals 1. Classical and Quantum Gravity (Web of Science, Scopus, IF = 3.487), 2. Physica A (Web of Science, Scopus, IF = 2.5), 3. Journal of Physics A: Math. Theor. (Web of Science,Scopus, IF = 2.110), 4. International Journal of Theoretical Physics (Web of Science, Scopus, IF =1.121), 5. Modern Physics Letters A (Web of Science, Scopus, IF = 1.367), 6. Few-Body Systems (Web of Sscience, Scopus, IF = 0.874), 7. Zeitschrift für Naturforschung A (IF = 1.079), 8.Journal of Physical Studies (Web of Science, Scopus) and others Publications

Participation in the organizing committees of scientific events

1. Co-organizer with Prof. Tkachuk V. M. Scientific event dedicated to the World Quantum Day, April 25-26, Lviv, Ukraine. https://www.youtube.com/@QuantumComputersandQuantumProg
2. Co-organizer with Prof. Tkachuk V. M. of the section "Fundamental Problems of Quantum Mechanics, Quantum Information, and Quantum Computing" within the

framework of the All-Ukrainian Conference of Researchers, live in Lviv, September 19-25, 2021.

3. Co-organizer with Prof. Tkachuk V. M. of the conference "Quantum Information and Quantum Programming at Ivan Franko National University of Lviv", April 28 2023. The event was confirmed by the World Quantum Day Coordination Team and took place live. https://lnu.edu.ua/v-universyteti-prezentuvaly-pershu-v-ukraini-bakalavrsku-osvitniu-prohramu-kvantovi-komp-iutery-ta-kvantove-prohramuvannia/ https://worldquantumday.org/events/quantum-information-and-quantum-programming-at-ivan-franko-national-university-of-lviv/

4. Member of the organizing committee of the international conference "13th Workshop on Current Problems in Physics," live, organized by Ivan Franko National University of Lviv and Zielona Góra University, Zielona Góra, Poland, October 25-28, 2021, October 26-27, 2023.

5. Member of the organizing committee of the all-Ukrainian conference "Christmas Discussions" which is held annually at Ivan Franko National University of Lviv. The latest conference 27-29, December 2023.

Promotion of scientific research

1. Gnatenko Kh. Series (5 episodes) on quantum mechanics for the Ukrainian popular science media Kunsh. Episode 1: https://www.youtube.com/watch?v=kPOdrFUo51U
Mentor of work on quantum computing and quantum music of Schoolchildren in the frame of Girls-STEM https://divchata-stem.org/

2. Organizer of the summer school "Quantum Programming for Schoolchildren," June 26-30, 2023. http://surl.li/phcwu

3. Gnatenko Kh. "Incredible in the Quantum World," Kolosok. 2020. No.4. P. 2–7. https://www.e- kolosok.org/category/author/h_hnatenko/

4. Gnatenko Kh. "Quantum Computers: Present and Future," Kolosok. 2020. No.5. P. 2–7. https://e-kolosok.org/khrystyna-hnatenko-kvantovi-komp-iutery-s-ohodennia-ta-maybutnie/

5. Gnatenko Kh. "Education Potential in the Field of Quantum Technologies," Zahid.net. 2023. https://zaxid.net/potentsial_osviti_u_sferi_kvantovih_tehnologiy_n1564809

6. Gnatenko Kh. "Students from Lviv Region Learned Quantum Programming at the Summer School," Zahid.net. 2023. https://zaxid.net/uchni_lvivshhini_navchalis_kvantovomu_programuvannyu_u_litniy_shkoli_n1567385

7. Gnatenko Kh. P. "About Quantum Computers and Quantum Programming at the University," Informatsiyno-Analitychnyy Chasopys "Kamenyar." 2021. No.1. P. 22.

07.08.2024  Khrystyna Gnatenko