

Curriculum Vitae

Kateryna Pozharska (Shvai)

Personal

Date of birth – 04.03. 1994
Nationality – Ukrainian
Marital status – married, 1 child (2022)



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Address

Theory of Functions Department
Institute of Mathematics
National Academy of Sciences of Ukraine
Tereshchenkivska Str. 3, 01024 Kyiv-4, Ukraine

Research interests

Approximation Theory, Information Based Complexity,
Theory of Function Spaces, Nonlinear approximation,
Data Sparsification, Sampling recovery, Discretization

Languages

Ukrainian (native), Russian (fluent), English (fluent),
German (B1)

PhD thesis “Best approximations and entropy numbers of the classes of periodic multivariate functions”
speciality – 01.01.01 Mathematical analysis
supervisor – Prof. Dr. Romanyuk A.S.
Date of defence – 29.01.2019
Date of approval – 05.03.2019

Education

2015–2018 PhD, Institute of Mathematics of NAS of Ukraine,
Theory of Functions Department, Kyiv, Ukraine

2014–2015 Master’s degree, Lesya Ukrainka Eastern European
National University, Faculty of Mathematics, Lutsk,
Ukraine (speciality “Mathematics”, master’s degree
with honours)

2010–2014 Bachelor’s degree, Lesya Ukrainka Eastern European
National University, Faculty of Mathematics, Lutsk,
Ukraine (speciality “Mathematics”, bachelor’s degree
with honours)

Experience

09.2022–present Postdoctoral researcher, Group of Prof. Dr. Tino Ullrich.
Within the scholarship from the Philipp Schwartz
Initiative of the Alexander von Humboldt Foundation.
Technische Universität Chemnitz, Germany.

12.2021–present Researcher, Group of Prof. Dr. Anatolii Romanyuk.
Theory of Functions Department, IM NAS of Ukraine.

10.2020–01.2022 Senior Lecturer, Department of Mathematical Analysis
and Statistics, Faculty of Information Technology and
Mathematics, Lesya Ukrainka Volyn National University,
Lutsk, Ukraine.

10.2019–09.2022 Member of the Council of Young Scientists,
Institute of Mathematics of NAS of Ukraine.

09.2019–01.2020 Invited researcher, Group of Prof. Dr. Tino Ullrich.
Technische Universität Chemnitz, Germany.

11.2018–12.2021 Junior researcher, Group of Prof. Dr. Anatolii Romanyuk.
Theory of Functions Department, IM NAS of Ukraine.

09.2017–12.2019 Junior researcher, Ukrainian State Budget Theme
“Extremal Problems of Approximation Theory in
Functional Spaces”

Short research visits

23.03.19-24.04.19 Institute of Mathematics, Universität zu Lübeck,
Germany. Visit in the framework of H2020-MSCA-RISE-
2014 Project number 645672 (AMMODIT).
Research with Prof. Dr. Juergen Prestin.

13.11.18-20.12.18 Institute of Mathematics, Universität zu Lübeck,
Germany. Visit in the framework of H2020-MSCA-RISE-
2014 Project number 645672 (AMMODIT).
Research with Prof. Dr. Juergen Prestin.

01.08.18-31.08.18 Johann Radon Institute for Computational and Applied
Mathematics (RICAM), Austrian Academy of Sciences,
Austria. Visit in the framework of H2020-MSCA-RISE-
2014 Project number 645672 (AMMODIT).
Research with Prof. Dr. Sergei Pereverzyev.

Scholarships and Awards

2023 Award of the National Academy of Sciences of Ukraine
“Talent, inspiration, work”

2023 Joseph F. Traub Information-Based Complexity Young
Researcher Award

09.2022–present Scholarship of the Philipp Schwartz Initiative of the
Alexander von Humboldt Foundation

2021 The Award of the President of Ukraine for young scien-
tists

11.2020–08.2022 Scholarship of the National Academy of Sciences of Ukraine
for young scientists

2020–2021 Grant of the National Academy of Sciences of Ukraine
for research groups of young scientists of NAS of Ukraine
for research within the priority branches of science and
technology development

List of publications

- 2024 (1) D. Krieg, K. Pozharska, M. Ullrich, T. Ullrich, *Sampling projections in the uniform norm*. arXiv: 2401.02220, 2024.
- 2023 (2) D. Krieg, K. Pozharska, M. Ullrich, T. Ullrich, *Sampling recovery in the uniform and other norms*. arXiv: 2305.07539v2, 2023.
- (3) A. Romanyuk, V. Romanyuk, K. Pozharska, S. Hem-bars'ka, *Characteristics of linear and nonlinear approximation of isotropic classes of periodic multivariate functions*, Carpathian Math. Publ. 15, No. 1, 78-94 (2023).
- 2022 (4) K. Pozharska, T. Ullrich, *A note on sampling recovery of multivariate functions in the uniform norm*, SIAM J. Numer. Anal. 60, No. 3, 1363–1384 (2022).
- (5) O. Shvai, K. Pozharska, *On some approximation properties of Gauss-Weierstrass singular operators*, J. Math. Sci. 260, No. 5, 693–699 (2022).
- 2021 (6) A. A. Pozharskyi, K. V. Pozharska, *Recovery of continuous functions of two variables from their Fourier coefficients known with error*, Carpathian Math. Publ. 13, No. 3, 676–686 (2021).
- (7) K. Pozharska, *Best approximations and entropy numbers of the classes of periodic functions of many variables*. In: TEMat monográficos, 2 (2021): Proceedings of the 3rd BYMAT Conference, pp. 147-150.
- 2020 (8) K. V. Pozharska, A. A. Pozharskyi, *Recovery of continuous functions from their Fourier coefficients known with error*, Res. Math. 28, No. 2, 24–34 (2020).
- (9) I. V. Kal'chuk, YU. I. Kharkevych, K. V. Pozharska, *Asymptotics of approximation of functions by conjugate Poisson integrals*, Carpathian Math. Publ. 12, No. 1, 138–147 (2020).
- 2019 (10) K. V. Pozharska, *Entropy numbers of the Nikil'skii – Besov-type classes of periodic functions of many variables*, J. of Math. Sci. 241, No. 1, 64–76 (2019).
- (11) K. V. Pozharska, *Estimates for the entropy numbers of*

- the classes $B_{p,\theta}^\Omega$ of periodic multivariable functions in the uniform metric, Ukr. Math. J. 70, No. 9, 1439-1455 (2019).
- 2018 (12) K. V. Shvai, *Estimation of the best bilinear approximations for the classes of (ψ, β) -differentiable periodic multivariable functions*, Ukr. Math. J. 70, No. 4, 649-660 (2018).
- (13) Yu. I. Kharkevych, K. V. Pozharska, *Asymptotics of approximation of conjugate functions by Poisson integrals*, Acta et Commentationes Universitatis Tartuensis de Mathematica. 22, No. 2, 235-243 (2018).
- 2017 (14) K. V. Pozharska, *Estimates of the best M -term trigonometric approximations of the classes $L_{\beta,p}^\psi$ of periodic multivariate functions of small smoothness in the space L_q* , Differential equations and related questions of analysis: Zb. Pr. Inst. Mat. NAN Ukr. 14, No. 3, 293-318 (2017). (in Ukrainian)
- (15) K. V. Shvai, *The best M -term trigonometric approximations of the classes of periodic multivariate functions with bounded generalized derivative in the space L_q* , J. Math. Sci. 222, No. 6, 750-761 (2017).
- 2016 (16) K. V. Shvai, *The best M -term trigonometric approximations of classes of (ψ, β) -differentiable periodic multivariate functions in the space L_q* , J. Num. and Appl. Math. 122, No. 2, 83-91 (2016).
- (17) K. V. Shvai, *Estimates of the best orthogonal trigonometric approximations of the generalized multivariate analogues of Bernoulli kernels and classes $L_{\beta,1}^\psi$ in the space L_q* , Differential equations and related questions of analysis: Zb. Pr. Inst. Mat. NAN Ukr. 13, No. 1, 300-320 (2016). (in Ukrainian)

Conferences and Workshops

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|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18.09.23-22.09.23 | Workshop and Summer School on Applied Analysis 2023, Chemnitz, Germany |
| 02.09.23-06.09.23 | Workshop “From Modeling and Analysis to Approximation and Fast Algorithms”, Hasenwinkel, Germany |
| 27.08.23-01.09.23 | Dagstuhl-Seminar 23351 “Algorithms and Complexity for Continuous Problems”, Schloss Dagstuhl, Leibniz-Zentrum für Informatik, Germany |
| 19.06.23-21.06.23 | Foundations of Computational Mathematics (FoCM) 2023, Paris, France |
| 01.06.23-03.06.23 | International Conference of Young Mathematicians, Kyiv, Ukraine (online) |
| 21.06.21-25.06.21 | 9th International Online Conference on “Mathematical Analysis, Differential Equation & Applications MADEA 9”, Bishkek, Kyrgyz Republic |
| 16.06.21-18.06.21 | Contemporary Analysis and Its Applications. Satellite event of the 8th European Congress of Mathematics, Portorož, Slovenia (online) |
| 03.06.21-05.06.21 | International Conference of Young Mathematicians, Kyiv, Ukraine (online) |
| 26.05.21-28.05.21 | Conference of Young Scientists “Pidstryhach readings – 2021”, Lviv, Ukraine (online) |
| 12.05.21-13.05.21 | International research and practice conference of post-graduate students and students “Young science of Ukraine: priorities and perspectives of research”, Lutsk, Ukraine |
| 19.03.21-21.03.21 | International Online Workshop on Approximation Theory, Ivano-Frankivsk, Ukraine |
| 01.12.20-03.12.20 | 3rd BYMAT Conference, Valencia, Spain |
| 26.10.20-30.10.20 | 11th International Skorobohatko Mathematical Conference, Lviv, Ukraine |
| 16.09.20-19.09.20 | International conference dedicated to the 100th anniversary of M. P. Korneichuk (1920-2003), Dnipro, Ukraine |

- 26.05.20-28.05.20 Conference of Young Scientists “Pidstryhach Readings – 2020”, Lviv, Ukraine
- 21.05.20-22.05.20 International research and practice conference of young scholars, postgraduates and bachelor students “Challenges and opportunities of modern science”, Rivne, Ukraine
- 04.03.20-08.03.20 Workshop “Analytical Modeling and Approximation Methods” , A meeting within the VolkswagenStiftung project “From Modeling and Analysis to Approximation”, Berlin, Germany
- 23.09.19-27.09.19 Chemnitz Summer School on Applied Analysis 2019 Faculty of Mathematics of the Chemnitz University of Technology, Germany
- 20.06.19-26.06.19 International Conference “Functional Methods in Approximation Theory, Differential Equations and Numerical Mathematics IV” dedicated to the 100th anniversary of V. K. Dzyadyk (1919–1998), Svityaz', Ukraine
- 06.06.19-08.06.19 International Conference of Young Mathematicians, Kyiv, Ukraine
- 18.03.19-22.03.19 Final AMMODIT Conference “Mathematics for life sciences”, Kyiv, Ukraine
- 17.09.18-19.09.18 International Scientific Conference “Modern problems of mathematics and its application in natural sciences and information technologies” in honor of the 50th anniversary of the Faculty of Mathematics and Informatics, Chernivtsi, Ukraine
- 22.05.18-25.05.18 International Conference “Modern Problems of Mechanics and Mathematics” dedicated to 90th anniversary of Ya. S. Pidstryhach, Academician of NASU and 40th anniversary of the Institute for Applied Problems of Mechanics and Mathematics of NASU, Lviv, Ukraine
- 19.03.18-23.03.18 4th AMMODIT Conference, Malekhiv (Lviv region), Ukraine
- 07.06.17-10.06.17 International Conference of Young Mathematicians in honor of the 100th anniversary of Academician of NASU, Prof. Yu. O. Mitropolskiy, Kyiv, Ukraine

- 28.05.17-03.06.17 International Conference “Theory of approximation of functions and its applications” in honor of the 75th anniversary of Alexander Stepanets, Doctor of Sciences, Professor, Corresponding Member of NASU, Slovyansk, Ukraine
- 23.05.17-25.05.17 Conference of Young Scientists “Pidstryhach Readings – 2017”, Lviv, Ukraine
- 22.02.17-25.02.17 All-Ukrainian Scientific Conference “Modern problems of probability theory and mathematical analysis”, Vorokhta, Ukraine
- 26.01.17-30.01.17 3rd Conference “Approximation Methods for Molecular Modelling and Diagnosis Tools” (AMMODIT), Kyiv, Ukraine
- 01.08.16-14.08.16 XI Summer School “Algebra, Topology, Analysis”, Odessa, Ukraine
- 25.05.16-27.05.16 Conference of Young Scientists “Pidstryhach Readings – 2016”, Lviv, Ukraine

Seminar Talks

- 08.01.2024 Joint seminar of the Technical University of Munich and the Helmholtz Center Munich, Germany
- 10.10.2023 Oberseminar Angewandte Analysis, Institute of Mathematics, Universität Osnabrück, Germany
- 09.08.2023 Faculty of Mathematics, Technische Universität Chemnitz, Germany
- 29.09.2021 Point Distributions Webinar, online
- 09.09.2021 EU Project SOMPATY Seminar (“Spectral Optimization: From Mathematics to Physics and Advanced TechnologY”), online
- 13.05.2021 Oles Honchar Dnipro National University, Ukraine
- 04.03.2020 Faculty of Mathematics, Technische Universität Chemnitz, Germany
- 28.05.2019 Faculty of Mathematics, Technische Universität Chemnitz, Germany

28.11.2018	Institute of Mathematics, Universität zu Lübeck, Germany
27.09.2018	Taras Shevchenko National University of Kyiv, Ukraine
–	Institute of Mathematics of NAS of Ukraine, Ukraine

Managerial Activities:

06.06.22-10.06.22	International Conference “Theory of Approximation of Functions and its Applications”, dedicated to the 80th anniversary of Corresponding Member of the National Academy of Sciences of Ukraine, Professor Alexander Stepanets (1942-2007) Lutsk, Ukraine (Scientific Secretary)
03.06.21-05.06.21	International Conference of Young Mathematicians, Kyiv, Ukraine (Member of the Program Committee)
20.06.19-26.06.19	International Conference “Functional Methods in Approximation Theory, Differential Equations and Numerical Mathematics IV” dedicated to the 100th anniversary of V. K. Dzyadyk (1919-1998), Svityaz’, Volyn region, Ukraine (Secretary of the conference)
06.06.19-08.06.19	International Conference of Young Mathematicians, Kyiv, Ukraine (Member of the Organizing Committee)
18.03.19-22.03.19	Final AMMODIT Conference “Mathematics for life sciences”, Kyiv, Ukraine (Member of the Local Organizing Committee)
02.09.18-04.09.18	Coordination meeting of the planned project “Spectral optimization: From Mathematics to Engineering and Life Sciences” (SOMELS), Kyiv, Ukraine (Member of the Local Organizing Committee)
07.06.17-10.06.17	International Conference of Young Mathematicians in honor of the 100th anniversary of Academician of NASU, Prof. Yu. O. Mitropolskiy, Kyiv, Ukraine (Member of the Local Organizing Committee)