CURRICULUM VITAE

Petr KOSENKO

EDUCATION:

2012–2016, Undergraduate student of Higher School of Economics, Department of Mathematics.
Title of the bachelor thesis: *"Arens-Michael envelopes of some noncommutative algebras"*.
Advisor: prof. Alexei Yu. Pirkovskii.
2016–2018, Graduate student of Higher School of Economics, Department of Mathematics.
Title of the master thesis: *"Homological Dimensions of Smooth Crossed Products"*.
Advisor: prof. Alexei Yu. Pirkovskii.
2018-2023, PhD student at University of Toronto, Department of Mathematics.
Advisor: prof. Giulio Tiozzo.
Title of the PhD thesis: *"Harmonic measures for random walks on cocompact Fuchsian groups"*.
2018-2023, Graduate student at Higher School of Economics, Department of Mathematics.
Advisor: prof. Alexei Yu. Pirkovskii.

Current position: Postdoctoral fellow at University of British Columbia, Department of Mathematics, 2023-2026

AREAS OF SPECIALIZATION:

Pre-2018 I was focusing on problems related to homological properties of Banach and locally convex modules, with the ultimate goal of unifying the key concepts of functional analysis and homological algebra.

Post-2018 I have switched to exploring the applications of probability theory to geometric group theory. Currently I am studying random walks and Poisson boundaries of hyperbolic groups, self-similar groups and lattices in higher-rank real Lie groups.

PREPRINTS AND PAPERS

[KK20] A. B. Kalmynin and P. R. Kosenko. "Orthorecursive expansion of unity". In: *International Journal of Number Theory* 16.06 (2020), pp. 1209–1226. DOI: 10.1142/S1793042120500621. eprint: https://doi.org/10.1142/S1793042120500621. URL: https://doi.org/10.1142/S1793042120500621.

[Kos20] ∗ Petr Kosenko. "Fundamental Inequality for Hyperbolic Coxeter and Fuchsian Groups Equipped with Geometric Distances". In: *International Mathematics Research Notices* (Aug. 2020). rnaa213. ISSN: 1073-7928. DOI: 10.1093/imrn/rnaa213. eprint: https://academic.oup.com/imrn/advance-article-pdf/doi/10.1093/imrn/rnaa213/33684382/rnaa213.pdf. URL: https://doi.org/10.1093/imrn/rnaa213.

[Kos21] ∗ Petr Kosenko. "Homological dimensions of smooth crossed products". In: *Annals of Functional Analysis* 12.3 (2021), pp. 1–32.

[Kos22] Petr Kosenko. "The Arens-Michael envelopes of Laurent Ore extensions". In: *Turkish Journal of Mathematics* 46.3 (2022), pp. 839–863.

[Kos23a] P. Kosenko. "Homological dimensions of analytic Ore extensions". In: *International Journal of Mathematics* 34.10 (July 2023). DOI: https://doi.org/10.1142/S0129167X23500611.

[Kos23b] Petr Kosenko. *Asymptotics of the first-passage function on free and Fuchsian groups*. 2023. arXiv: 2301.09242 [math.PR].

[Kos24] Petr Kosenko. *On a complex-analytic approach to classifying stationary measures on S^1 with respect to the countably supported measures on $PSU(1,1)$*. 2024. arXiv: 2403.11065 [math.DS]. URL: https://arxiv.org/abs/2403.11065.

[KT22] Petr Kosenko and Giulio Tiozzo. "The fundamental inequality for cocompact Fuchsian groups". In: *Forum of Mathematics, Sigma* 10 (2022), e102. DOI: 10.1017/fms.2022.94.

AWARDS:

1. Irving Kaplansky Fellowship In Mathematics, 2019
2. John Robert Gilkison Smyth Mathematics Scholarship, 2019
3. Blyth Fellowship, 2019
4. Margaret Isobel Elliott Graduate Scholarship, 2022
5. Malcolm Slingsby Robertson Prize, 2023

PARTICIPATION IN CONFERENCES:

1. Banach Algebras and Applications, University of Oulu, Oulu, Finland, July 3-11, 2017. Title of talk: *Arens-Michael envelopes of Ore extensions*.
2. Interactions between Geometry, Dynamics and Group Theory, University of Bristol, UK, 15-17th of January 2020, Poster title: On hitting measure of random walks on Fuchsian groups
3. GAGTA 2022, Stevens Institute, Hoboken NJ, June 29 2022 – July 3 2022.
4. Measured Group Theory (part of thematic program Geometric Group Theory), Centre de recherches mathématiques (CRM), Montreal, March 6-17 2023
5. Thermodynamic Formalism for Geodesic Flows (23w5095), BIRS, Kelowna, BC, Canada, 16-21 July 2023

6. Nonlinear Days 2024: Dynamics of Group Actions and Random Walks on Groups, Fields Institute, Toronto, ON, Canada, May 13-17, 2024

7. 2024 CMI-HIMR Summer School on Symmetry and Randomness, University of Bristol, Bristol, UK, July 15-19, 2024

TEACHING:

1. September 2018 - December 2018, Teaching Assistant at MAT292H1F, Calculus III, University of Toronto

2. January 2019 - April 2019, Teaching Assistant at MAT136H1S, Calculus I, University of Toronto

3. January 2019 - April 2019, Teaching Assistant at MAT187H1S, Calculus II, University of Toronto

4. May 2019 - August 2019, Teaching Assistant at MAT136H1Y, Calculus I, University of Toronto

5. September 2019 - April 2020, Teaching Assistant at MAT237Y1Y, Multivariable Calculus, University of Toronto

6. September 2019 - December 2019, Teaching Assistant at MAT292H1F, Calculus III, University of Toronto

7. January 2020 - April 2020, Teaching Assistant at MAT267H1S, Calculus III, University of Toronto

8. September 2020 - December 2020, Teaching Assistant at MAT337H1F, Introduction to Real Analysis, University of Toronto

9. September 2020 - April 2021, Teaching Assistant at MAT257Y1Y, Analysis II, University of Toronto

10. January 2021 - April 2021, Teaching Assistant at MAT267H1S, Advanced Ordinary Differential Equations, University of Toronto

11. May 2021 - August 2021, Course Instructor at MAT244H1-Y, Introduction to Ordinary Differential Equations, University of Toronto

12. May 2021 - August 2021, Course Instructor at MAT301H1-Y, Groups and Symmetries, University of Toronto

13. January 2022 - April 2022, Course Instructor at MAT223H1, Linear Algebra 1, University of Toronto

14. May 2022 - August 2022, Course Instructor at MAT301H1-Y, Groups and Symmetries, University of Toronto

15. September 2022 - December 2022, Teaching Assistant at MAT301H1, Groups and Symmetries, University of Toronto

16. September 2023 - December 2023, Course Instructor at MATH100, Differential Calculus with Applications, University of British Columbia.

17. January 2024 - April 2024, Course Instructor at MATH101, Differential Calculus with Applications, University of British Columbia.

email: pk226575@gmail.com
email: pkosenko@math.ubc.ca