

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.

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].
- [KT22] Petr Kosenko and Giulio Tiozzo. “The fundamental inequality for co-compact 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

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

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.

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