Pawel Sarkowicz
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Personal

Birth date: June, 1995
Languages: fluent English (native), moderate Polish (native)
Citizenship: Canadian

Education

Doctorate in Philosophy (PhD), Mathematics and Statistics — 2019-2023
University of Ottawa
Supervisors: Thierry Giordano & Aaron Tikuisis
Thesis: *Topics related to tensorially absorbing inclusions and algebraic K-theory of C*-algebras*

Master of Mathematics (MMath), Pure Mathematics — 2018-2019
University of Waterloo
Supervisor: Laurent Marcoux
Thesis: *Exact C*-algebras and the Kirchberg-Phillips nuclear embedding theorem*

Bachelor of Mathematics (BMath), Pure Mathematics, Honours — 2013-2018
University of Waterloo

Employment

University of Waterloo — 2023-2024
Postdoctoral fellow with Matthew Kennedy & Laurent Marcoux

Research Interests

I study operator algebras. In particular, I'm interested in unitary groups, K-theory (both algebraic and topological), approximation properties, and regularity of C*-algebras.

Articles

[3] *Unitary groups, K-theory, and traces.* Glasgow Mathematical Journal (2023).
doi: 10.1017/S0017089523000447

[2] *Polar decomposition in algebraic K-theory* (with Aaron Tikuisis). To appear in Journal of Operator Theory.
Preprint: arXiv.2303.16248

[1] *Tensorially absorbing inclusions of C*-algebras.* To appear in Canadian Journal of Mathematics.
Preprint: arXiv.221.14974

Talks

12. *Tensorially absorbing inclusions.* Functional analysis seminar. University of Oxford. March 2024.
11. *Embeddings of unitary groups.* UH analysis seminar. University of Houston. February 2024.
10. *Polar decomposition in algebraic K-theory.* Thematic Program on Operator Algebras and Applications. Twinned Conference on C*-algebras and Tensor Categories. Fields Institute. November 2023. (contributed)
9. *Polar decomposition in algebraic K-theory.* Special session on advances in operator algebras, American Mathematical Society (AMS) Fall Central Sectional Meeting. Creighton University. October 2023. (invited)
8. *Unitary groups, K-theory and traces.* Thematic Program on Operator Algebras and Applications. Workshop on Operator Algebras and Applications: Groups and Group Actions. Fields Institute. October 2023. (invited)

7. *Tensorially absorbing inclusions of C*-algebras.* NYC noncommutative geometry seminar. St. John's University (online). September 2023. (invited)
6. *KK-theory and the UCT.* Ask anything session, Young Mathematicians in C*-algebras (YMC*A). KU Leuven. August 2023.
5. *Polar decomposition in algebraic K-theory.* C*-algebras and applications session, Canadian Mathematical Society (CMS) Summer meeting. University of Ottawa. June 2023.
4. *Tensorially absorbing inclusions of C*-algebras.* Canadian Operator Symposium (COSy). Western University. May 2023. (contributed)
3. *Tensorially absorbing inclusions of C*-algebras.* Ottawa Analysis Seminar. University of Ottawa. January 2023.
2. *Unitary groups and traces.* Summer School in Operator Algebras. University of Ottawa (online). June 2021. (contributed)
1. *Determinants on C*-algebras.* ASU C*-seminar. Arizona State University (online). March 2021. (contributed)

VISITS

3. University of Oxford. March 2024.
2. University of Houston. February 2024.
1. Fields Institute. Visitor for the Thematic Program on Operator Algebras and Applications. Fall 2023.

TEACHING

Instructor

2. MAT 1362 (Mathematical Reasoning and Proofs). University of Ottawa. Winter 2023.
1. MAT 1341 (Introduction to Linear Algebra). University of Ottawa. Fall 2021.

Teaching Assistant

23. MAT 5328 (Introduction to Operator Algebras). University of Ottawa. Winter 2023. Fields Academy Shared Graduate Course.
22. MAT 1330 (Calculus for Life Sciences 1) (3 sections). University of Ottawa. Fall 2022.
21. MAT 2122 (Multivariable Calculus). University of Ottawa. Fall 2022.
20. MAT 1322 (Calculus 2). University of Ottawa. Winter 2022.
19. MAT 1302 (Mathematical Methods 2). University of Ottawa. Winter 2022.
18. MAT 1300 (Mathematical Methods 1). University of Ottawa. Winter 2021.
17. MAT 1332 (Calculus for Life Sciences 2). University of Ottawa. Winter 2021.
16. MAT 1341 (Introduction to Linear Algebra). University of Ottawa. Winter 2021.
15. MAT 1348 (Discrete Math for Computing). University of Ottawa. Winter 2021.
14. MAT 2342 (Applied Linear Algebra). University of Ottawa. Fall 2020.
13. MAT 1300 (Mathematical Methods 1). University of Ottawa. Fall 2020.
12. MAT 1341 (Introduction to Linear Algebra). University of Ottawa. Fall 2020.
11. MAT 1332 (Calculus for Life Sciences 2). University of Ottawa. Winter 2020.
10. MAT 2125 (Elementary Real Analysis). University of Ottawa. Winter 2020.
9. MATHELP (Mathematics Help Centre). University of Ottawa. Winter 2020.
8. MAT 1322 (Calculus 2). University of Ottawa. Fall 2019.
7. MAT 1330 (Calculus for Life Sciences 1). University of Ottawa. Fall 2019.
6. PMATH 347 (Groups and Rings). University of Waterloo. Spring 2019.
5. MATH 119 (Calculus 2 for Engineering). University of Waterloo. Spring 2019.

4. MATH 128 (Calculus 2 for the Sciences). University of Waterloo. Winter 2019.
3. MATH 138 (Calculus 2 for Honours Mathematics). University of Waterloo. Winter 2019.
2. MATH 115 (Linear Algebra for Engineering). University of Waterloo. Fall 2018.
1. MATH 135 (Algebra for Honours Mathematics). University of Waterloo. Fall 2018.

Awards

3. Admission Scholarship – Doctorate. Fall 2019 - Spring 2023.
   University of Ottawa
   Value: $9,000 (CAD)/year
2. NSERC Undergraduate Student Research Award (USRA). Winter 2018.
   University of Waterloo
   Supervisor: Laurent Marcoux
   Thesis: *Nuclear C*-algebras and Kadison's similarity problem*
   Value: $4,500 (CAD)
1. University of Waterloo Merit Scholarship. Fall 2013.
   University of Waterloo
   Value: $1000 (CAD)

Service

Referee

3 journals

Orgnaization

4. *C*-algebras and applications session*, Canadian Mathematical Society (CMS) Summer Meeting. University of Ottawa. June 2023. Co-organized with Thierry Giordano, Dolapo Oyetunbi, and Charles Starling.
3. *Modular automorphisms and locally compact quantum groups reading group.* Carleton University. Winter 2023. Co-organzied with Soroush Kazemi, Finlay Rankin, and Quintin Trayling.
2. *K-theory of operator algebras learning seminar.* University of Waterloo. Spring 2019.
1. *Model theory of C*-algebras learning seminar.* University of Waterloo. Winter/Spring 2019.

Conferences Attended

16. American Mathematical Society (AMS) Fall Central Sectional Meeting. Creighton University. October 2023.
15. Thematic Program on Operator Algebras and Applications. Fields Institute. July - December 2023.
    - Workshop on Operator Algebras and Applications: Connections with Logic. August 28 - September 1.
    - Workshop on Operator Algebras and Applications: Symmetry and Structure. September 18-22.
    - Workshop on Operator Algebras and Applications: Groups and Group Actions. October 2-6.
    - Twinned Conference on C*-Algebras and Tensor Categories. November 6-10.
    - Workshop on Operator Algebras and Applications: Free Probability. November 13-17.
    - Workshop on Operator Algebras and Applications: Non-Commutative Geometry. December 4-8.
14. Young Mathematicians in C*-algebras (YMC*A). KU Leuven. August 2023.
13. Canadian Mathematical Society (CMS) Summer Meeting. University of Ottawa. June 2023.

12. Canadian Operator Symposium (COSy). Western University. May 2023.
11. Canadian Operator Symposium (COSy). University of Ottawa. June 2022.
10. Young Mathematicians in C*-algebras (YMC*A). University of Münster (online). August 2021.
9. Groups meet C*-algebras. University of Münster (online). June/July 2021.
8. Summer school in operator algebras. University of Ottawa (online). June 2021.
7. Canadian Mathematical Society (CMS) Summer Meeting. University of Ottawa (online). June 2021.
6. Canadian Operator Symposium (COSy). University of Guelph (online). May/June 2021.
5. Actions of Tensor Categories on C*-algebras. IPAM UCLA virtual workshop (online). January 2021.
4. Canadian Operator Symposium (COSy). Fields Institute (online). May 2020.
3. Canadian Mathematical Society (CMS) Winter Meeting. Chelsea Hotel, Toronto. December 2019.
2. Canadian Operator Symposium (COSy). University of Regina. June 2019.
1. Southern Ontario Operator Algebra Seminar. Fields Institute. February 2019.

Other tidbits

1. Contributor on math.stackexchange
https://math.stackexchange.com/users/626814/pstheman

Local talks

(i.e., talks given in local learning seminars, colloquiums, reading groups and so on. Basically non-research talks)

15. *New operator spaces from old.* Operator space learning seminar. University of Houston. February 2024.
14. *Amenability for rigid C*-tensor categories.* Harmonic analysis on rigid C*-tensor categories learning seminar. University of Waterloo. November 2023.
13. *Modular automorphism groups by example.* Modular automorphisms and locally compact quantum groups reading group. Carleton University. March 2023.
12. *von Neumann algebras primer.* Modular automorphisms and locally compact quantum groups reading group. Carleton University. February 2023.
11. *Groupoid small boundary property.* Ottawa Analysis Seminar (University of Ottawa and Carleton University joint learning seminar). November 2022.
10. *Unitary error bases and representations of quantum Cuntz-Krieger algebras* (online). Ottawa Analysis Seminar (University of Ottawa and Carleton University joint learning seminar). April 2022.
9. *Property Gamma implies CPoU* (online). Ottawa Analysis Seminar (University of Ottawa and Carleton University joint learning seminar). October 2021.
8. *K-theory of graph C*-algebras* (online). Ottawa Analysis Seminar (University of Ottawa and Carleton University joint learning seminar). March 2021.
7. *Graph C*-algebra basics* (online). Ottawa Analysis Seminar (University of Ottawa and Carleton University joint learning seminar). February 2021.
6. *A Fourier series approach to the isoperimetric problem* (online). MSGSA Graduate Student Colloquium. University of Ottawa. November 2020.
5. *Generalizations of non-nuclear C*-algebras with the WEP and the LLP* (online). Ottawa Analysis Seminar (University of Ottawa and Carleton University joint learning seminar). December 2020.
4. *Weak expectation property and the local lifting property* (online). Ottawa Analysis Seminar (University of Ottawa and Carleton University joint learning seminar). October 2020.

3. *Separably inheritable properties.* Ottawa Analysis Seminar (University of Ottawa and Carleton University joint learning seminar). January 2020.
2. *Simplicity of the commutator subgroup of the topological full group.* Ottawa Analysis Seminar (University of Ottawa and Carleton University joint learning seminar). November 2019.
1. *Amenable actions.* Ottawa Analysis Seminar (University of Ottawa and Carleton University joint learning seminar). September 2019.