Daniel Drimbe

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Education

Ph.D. Mathematics, University of California San Diego, graduated in June 2018.
Thesis Advisor: Adrian Ioana

M.A. Mathematics, Université Paris Sud, France, June 2013.

B.S. Mathematics, University of Bucharest, Romania, June 2011.

Research interests

Operator Algebras: von Neumann algebras and C^*-algebras.

Ergodic Theory: orbit equivalence and measured group theory.

Group Theory: representation and geometric aspects.

Logic: continuous model theory.

Academic Employment

Postdoctoral Fellow, Oxford University, 2023-present.

FWO Postdoctoral Fellow, KU Leuven, 2020-2023.

PIMS Postdoctoral Fellow, University of Regina, 2018-2020.

Teaching/Research Assistant, University of California San Diego, 2013-2018.

Awards

The Young Scholar Award from the Belgian Mathematical Society, 2022.

Flemish Science Foundation (FWO) Fellowship, 2020-2023.

Pacific Institute for the Mathematical Sciences (PIMS) Fellowship, 2018-2020.

AMS Student Travel Grant, 2018.

Powell Dissertation Fellowship, UC San Diego, 2017.

James B. Ax Fellowship, UC San Diego, 2013-2014.

Jacques Hadamard scholarship, Université Paris Sud, 2012-2013.

Research scholarship, University of Bucharest, 2011.

Second prize at International Mathematics Competition, 2010, 2011.

Gold medal at South Eastern European Mathematical Olympiad for University Students, 2010.

Merit Scholarship, University of Bucharest, 2009-2012.

Grants

Flemish Science Foundation (FWO) Grant: 282.000 euros supporting my research program at KU Leveun, 2020-2023.

PIMS grant for organizing the 47th Canadian Operator Symposium, June 2019. Joint application with Martín Argerami and Remus Floricel.

Publications

1. D. Drimbe: *Cocycle and orbit equivalence superrigidity for coinduced actions*, Ergodic Theory and Dynamical Systems **38** (2018), no. 7, 2644-2665.

2. D. Drimbe, D. Hoff and A. Ioana: *Prime II$_1$ factors arising from irreducible lattices in products of rank one simple Lie groups*, Journal für die reine und angewandte Mathematik (Crelle) **757** (2019), 197–246.

3. D. Drimbe: *W*-superrigidity for coinduced actions*, International Journal of Mathematics **29** (2018), nr. 4, 1850033, 20 pp.

4. D. Drimbe: *Prime II$_1$ factors arising from actions of product groups*, Journal of Functional Analysis **278** (2020), no. 5, 108366.

5. D. Drimbe: *Orbit equivalence rigidity for product actions*, Communications in Mathematical Physics **379**, 41–59 (2020).

6. D. Drimbe, A. Ioana and J. Peterson: *Cocycle superrigidity for profinite actions of irreducible lattices*, Groups, Geometry, and Dynamics **17** (2023), no. 1, 315-329.

7. D. Drimbe: *Solid ergodicity and orbit equivalence rigidity for coinduced actions*, International Mathematics Research Notices (IMRN) **11** (2022), 8251–8279.

8. I. Chifan, A. Diaz-Arias and D. Drimbe: *New examples of W* and C*-superrigid groups*, Advances in Mathematics **412** (2023), no.1, 108797.

9. D. Drimbe: *Product rigidity in von Neumann and C*-algebras via s-malleable deformations*, Communications in Mathematical Physics **388**, 329–349 (2021).

10. I. Chifan, A. Diaz-Arias and D. Drimbe: *W* and C*-superrigidity results for coinduced groups*, Journal of Functional Analysis **284** (2023), no.1, 109730.

11. D. Drimbe and S. Vaes: *Superrigidity for dense subgroups of Lie groups and their actions on homogeneous spaces*, Mathematische Annalen **386** (2023), 2015-2059.

12. I. Chifan, D. Drimbe and A. Ioana: *Embedding universality for II$_1$ factors with property (T)*, Advances in Mathematics **417** (2023), Paper No. 108934, 24 pp.

13. I. Chifan, D. Drimbe and A. Ioana: *Tensor product indecomposability results for existentially closed factors*, Model Theory of Operator Algebras, Volume 11 in the series De Gruyter Series in Logic and Its Applications, 269-302.

14. I. Chifan, M. Davis and D. Drimbe: *Rigidity for von Neumann algebras of graph product groups. I. Structure of automorphisms*, preprint arXiv: 2209.12996 (2022).

15. D. Drimbe: *Measure equivalence rigidity via s-malleable deformations*, Compositio Mathematica, **159** (2023), 2023 - 2050.

16. I. Chifan, M. Davis and D. Drimbe: *Rigidity for von Neumann algebras of graph product groups II. Superrigidity results*, preprint arXiv:2304.05500 (2023).

17. R. Boutonnet, D. Drimbe, A. Ioana and S. Popa: *Non-isomorphism of $A^{*n}, 2 \leq n \leq \infty$, for a non-separable abelian von Neumann algebra A*, to appear in Geometric and Functional Analysis (GAFA), arXiv:2308.05671 (2023).

Research Talks

Invited Talks

Geometry, Algebra, Mathematical Physics and Topology Seminar, Cardiff University, December 2023.

Algebra, Geometry, and Topology Seminar, Heriot-Watt University, November 2023.

Brussels Summer School of Mathematics 2023, Université Libre de Bruxelles, August 2023.

Groups and Operator Algebras Seminar, Université Paris-Saclay, Orsay, June 2023.

Workshop on Groups and Operator Algebras, Institute of Mathematics of Orsay, Orsay, June 2023.

Algebra, Geometry and Topology Seminar (online), Heriot-Watt University, May 2023.

Groups and Operator Algebras Seminar, University of Copenhagen, May 2023.

Pure Mathematics colloquium, University of Southampton, May 2023.

Functional Analysis Seminar, Oxford University, May 2023.

Recent breakthroughs in Mathematics and General Assembly, Académie royale de Belgique, Brusells, March 2023.

Workshop on Von Neumann Algebras and Geometric Group Theory, University of California, San Diego, February 2023.

Analysis seminar, Imperial College London, February 2023.

Functional Analysis Seminar (online), University of California, Los Angeles, November 2022.

Operator Algebras Working Seminar, KU Leuven, October 2022.

Noncommutative Ergodic Theory workshop, Kiel University, Germany, October 2022.

Follow-up Workshop to the Trimester Program "Von Neumann Algebras", Hausdorff Research Institute for Mathematics, Bonn, Germany, August 2022.

Functional Analysis Seminar (online), University of California, Los Angeles, June 2022.

Geometry and Dynamics Seminar (online), Durham University, May 2022.

Operator algebras and Group Dynamics workshop, CIRM, Marseille, France, May 2022.

Methusalem Postdoc Day, KU Leuven, April 2022.

Operator Algebras Seminar, KU Leuven, December 2021.

Methusalem Colloquim (online), KU Leuven, November 2021.

Operator Algebras Seminar, Université Paris-Diderot, November 2021.

Topics in von Neumann Algebras and Geometric Group Theory workshop (online), October 2021.

International Workshop on Operator Theory and its Applications (IWOTA) (online), Special Session in Operator Algebras, Lancaster University, August 2021.

Operator Algebras Seminar (online), KU Leuven, June 2021.

Operator Algebras Seminar (online), Purdue University, West Lafayette, February 2021.

Functional Analysis Seminar (online), University of California, Los Angeles, January 2021.

Seminar in Operator Algebras (online), University of California, San Diego, January 2021.

Operator Theory Seminar (online), University of Iowa, Iowa City, October 2020.

Operator Algebras Seminar, KU Leuven, October 2020.

Operator Algebras Seminar, KU Leuven, December 2019.

Oberseminar C*-Algebren, WWU Munster, December 2019.

Operator Algebras Seminar, University of Copenhagen, December 2019.

Classification Problems in von Neumann Algebras workshop, Banff, October 2019.

Operator Theory Seminar, University of Iowa, Iowa City, September 2019.

CMS Session on Finite and Infinite Dimensional Structures in Non-Commutative Analysis, Summer Meeting, University of Regina, June 2019.

Operator Algebras Seminar, University of Regina, April 2019.

Functional Analysis Seminar, University of California, San Diego, February 2019.

Colloquim, University of Nebraska-Lincoln, January 2019.

Departmental Seminar, University of Calgary, November 2018.

East Coast Operator Algebra Symposium (ECOAS), Texas Christian University, Fort Worth, October 2018.

Colloquim, University of Regina, September 2018.

Subfactors workshop, University of Hawaii Maui College, Maui, May 2018.

Advances in Operator Algebras at the AMS Sectional Meeting at Vanderbilt University, Nashville, April 2018.

AMS Special Session on Advances in Operator Algebras, Joint Mathematical Meetings, San Diego, January 2018.

AMS Special Session on Advances in Operator Algebras, Fall Western Sectional Meeting, University of California Riverside, November 2017.

Operator Algebras Seminar, Purdue University, West Lafayette, October 2017.

Operator Theory Seminar, University of Iowa, Iowa City, October 2017.

Noncommutative Geometry and Operator Algebras Spring Institute (NCGOA), Vanderbilt University, Nashville, May 2017.

Subfactor Seminar, Vanderbilt University, Nashville, November 2016.

West Coast of Operator Algebras Seminar (WCOAS), University of Wyoming, Laramie, October 2016.

Operator Theory Seminar, University of Iowa, Iowa City, April 2016.

Groups and Dynamics Seminar, University of Texas, Austin, January 2016.

Functional Analysis Seminar, University of California, Los Angeles, January 2016.

Seminar in Operator Algebras, University of California, San Diego, November 2015.

Contributed Talks

Young Mathematicians in C*-Algebras (YMC*A 2021) (online), Munster, August 2021.

Summer School in Operator Algebras (online), Fields Institute and the University of Ottawa, June 2021.

Great Plains Operator Theory Symposium (GPOTS) (online), Washington University in St. Louis, May 2021.

48th Canadian Operator Symposium (COSy) (online), The Fields Institute, May 2020.

47th Canadian Operator Symposium (COSy), University of Regina, June 2019.

Great Plains Operator Theory Symposium (GPOTS), Texas A&M University, May 2019.

27th International Conference in Operator Theory, Timisoara, July 2018.

26th International Conference in Operator Theory, Timisoara, June 2016.

Teaching Experience

Associate Instructor

Oxford University, Michaelmas term 2023.
Course: Further Functional Analysis.

KU Leuven, Fall 2022.
Course: Functional Analysis.

KU Leuven, Spring 2022.
Course: Ergodic theory of group actions.

University of Regina, Winter 2020.
Course: Introduction to von Neumann algebras.

University of Regina, Fall 2018, Winter 2019, Winter 2020.
Course: Calculus (Math 110).

University of California San Diego, Fall 2016, Summer Session II 2017.
Course: Linear Algebra (Math 18).

Teaching Assistant

Oxford University, 2023

   Further Functional Analysis, Michaelmas term 2023.

KU Leuven, 2020

   Functional Analysis, Fall 2020.

University of California San Diego, 2013-2018.

   Calculus (Math 10C).
   Differential Equations (Math 20D).
   Linear Algebra (Math 20F).
   Real Analysis (Math 140A, Math 142A, Math 142B).
   Probability Theory (Math 180A).

Professional Activities

Organization of conferences

   Co-organizer, YMC*A, KU Leuven, August 2023.

   Co-organizer, 47th Canadian Operator Symposium, University of Regina, June 2019.

Organization of seminars

   Co-organizer, Operator Algebras Learning Seminar, University of Regina, 2019.

   Co-organizer, Entropy Theory Learning Seminar, University of California San Diego, 2017.

Mentoring and grading

   Mentor, research paper: *Spectral gap characterizations of property (T) for von Neumann algebras*, for student seminar, KU Leuven, 2022-2023.

   Supervisor, master thesis: *Unique prime factorization for von Neumann algebras*, KU Leuven, 2021-2022.

   Mentor, research paper: *Almost commuting matrices*, for student seminar, KU Leuven, 2021-2022.

Mentor, master thesis: *Non-uniqueness of Cartan subalgebras in II$_1$ factors*, KU Leuven, 2020-2021.

Mentor, research paper: *Orbit equivalence superrigidity for left-right translation actions*, for student seminar, KU Leuven, 2020-2021.

Grader, research student seminar, KU Leuven, 2020-2021.

Grader, San Diego Honors Math Contest, 2016-2017.

Committees

Member of the search committee for a postdoctoral position at the University of Oxford, 2023.

Doctoral Committee at KU Leuven for Bram Verjans, 2022.

Reader for two master theses at KU Leuven, 2023.

Refereeing

American Journal of Mathematics.

Compositio Mathematica.

Documenta Mathematica.

Journal of Functional Analysis.

Operators and Matrices.

Proceedings of the American Mathematical Society.