

## David Kerr

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### EDUCATION

- Ph.D. in Mathematics, 2001, University of Toronto, Canada
- M.Sc. in Mathematics, 1995, University of Toronto, Canada
- B.Math (Honours), Double Major in Pure and Applied Mathematics, 1994, University of Waterloo, Canada

### POSITIONS

- Professor 2021–, University of Münster
- Professor 2013–2020, Associate Professor 2009–2013, Assistant Professor 2004–2009, Texas A&M University
- CNRS Visiting Professor, ENS de Lyon, France, Jan-Mar 2018
- Visiting Professor, ENS de Lyon, France, Oct-Nov 2017
- Project Associate Professor, University of Tokyo, Japan, Feb-Jul 2013
- JSPS Research Fellow, University of Tokyo, Japan, 2004–2005
- Alexander von Humboldt Research Fellow, University of Münster, Germany, 2003–2004
- NSERC Postdoctoral Fellow, University of Tokyo, Japan, 2001–2002, University of Rome I, Italy, 2002–2003

### RESEARCH VISITS

- Erwin Schrödinger Institute, Vienna, Austria (Feb 2016)
- Mittag-Leffler Institute, Sweden (Feb-Mar 2016)
- Chongqing University, China (Jun 2012, May 2014, May 2015)
- University of Münster, Germany (Jun 2009, Oct-Nov 2011, Jun-Jul 2015)
- Research Institute for Mathematical Sciences, Kyoto University, Japan (Sep 2011)
- Centre de Recerca Matemàtica, Barcelona, Spain (Jun 2011)
- University of Science and Technology of China, Hefei, China (Jun 2010)
- SUNY at Buffalo, U.S.A. (Apr 2006, Feb 2010)
- University of Tokyo, Japan (Jun 2008, Dec 2009 - Jan 2010, Jun 2015)
- Université de Paris 6, France (May-Jun 2008, May-Jun 2009)
- University of Glasgow, UK (Nov 2008)

### FUNDING

- FRG Collaborative Research Centre 1442, Geometry: Deformations und Rigidity, Project D04 (PI), “Entropy, Orbit Equivalence, and Dynamical Tilings”, 2021–2024, €328,000
- NSF DMS-1900844 (PI, with co-PIs I. Holmes, W. Johnson, and E. Procaccia), “Workshop in Analysis and Probability”, 2019–2022, \$174,000
- NSF DMS-1901290 (PI, with co-PI F. Lledó), “Operator Algebras, Groups and Applications to Quantum Information”, 2019, \$36,000
- NSF DMS-1900745 (co-PI, with M. Anshelevich, K. Dykema (PI), M. Brannan, R. Smith, Z. Xie, and G. Yu), “Great Plains Operator Theory Symposium”, 2019, \$49,999
- NSF DMS-1800740 (PI, with co-PIs W. Johnson, G. Pisier, and E. Procaccia), “Workshop in Analysis and Probability”, 2018–2019, \$40,000
- NSF DMS-1800633 (PI) “Topology and Measure in Dynamics and Operator Algebras”, 2018–2021, \$180,000

- NSF DMS-1700407 (PI) “Ergodic Theory and Operator Algebras”, 2017, \$6,000
- NSF DMS-1500593 (PI) “Amenability, Soficity, Dynamics, and Operator Algebras”, 2015–2018, \$180,000
- NSF DMS-1501062 (PI, with co-PIs W. Johnson and G. Pisier), “Workshop in Analysis and Probability”, 2015–2018, \$239,997
- NSF DMS-1162309 (PI) “Independence and Dichotomies in Dynamics and Operator Algebras”, 2012–2015, \$171,228
- NSF DMS-1201343 (co-PI, with W. Johnson (PI) and G. Pisier), “Workshop in Analysis and Probability”, 2012–2015, \$310,062
- NSF DMS-0900938 (PI), “Operator Algebras, Dynamics, and Classification”, 2009–2012, \$150,000
- NSF DMS-0855328 (co-PI, with K. Dykema (PI), M. Anshelevich, and R. Smith), “Seventh East Coast Operator Algebras Symposium”, 2009, \$27,160
- NSF DMS-0600907 (PI), “Dynamics, Geometry, and Operator Algebras”, 2006–2009, \$99,199
- Japan Society for the Promotion of Science Grant-in-Aid, 2004–2005, ¥2,400,000

#### AWARDS

- 2017 Association of Former Students College Level Distinguished Achievement Award in Teaching, Texas A&M University
- 2012 Department of Mathematics Teaching Award, Texas A&M University
- 2002 Doctoral Prize of the Canadian Mathematical Society
- DeLury Teaching Award, Department of Mathematics, University of Toronto, 2000
- R. A. Wentzell Award for Applied Mathematics, University of Waterloo, 1993

#### SCHOLARSHIPS AND FELLOWSHIPS

- JSPS Postdoctoral Research Fellowship (Japan), 2004–2005
- Alexander von Humboldt Research Fellowship (Germany), 2003–2004
- NSERC (Canada) Postdoctoral Fellowship, 2001–2003
- OGSST (Ontario, Canada) Award, 1999–2000
- NSERC Postgraduate Scholarships A and B, 1994–1998
- University of Waterloo Senate Scholarship, 1993–1994
- NSERC Undergraduate Research Award, 1993
- Lester B. Pearson Scholarship, Carleton University, 1989–1991

#### BOOKS

- D. Kerr and H. Li. *Ergodic Theory: Independence and Dichotomies*. Springer Monographs in Mathematics. Springer, 2016.

#### ARTICLES

1. D. Kerr and H. Li. Entropy, virtual Abelianness, and Shannon orbit equivalence. To appear in *Ergodic Theory Dynam. Systems*.
2. D. Kerr and R. Tucker-Drob. Dynamical alternating groups, stability, property Gamma, and inner amenability. To appear in *Ann. Sci. Éc. Norm. Supér. (4)*.
3. D. Kerr and H. Li. Entropy, products, and bounded orbit equivalence. *Ergodic Theory Dynam. Systems* **43** (2023), 904–942.
4. D. Kerr and H. Li. Entropy, Shannon orbit equivalence, and sparse connectivity. *Math Ann.* **380** (2021), 1497–1562.

5. D. Kerr and G. Szabó. Almost finiteness and the small boundary property. *Comm. Math. Phys.* **374** (2020), 1–31.
6. D. Kerr. Dimension, comparison, and almost finiteness. *J. Eur. Math. Soc.* **22** (2020), 3697–3745.
7. M. Brannan and D. Kerr. Quantum groups, property (T), and weak mixing. *Comm. Math. Phys.* **360** (2018), 1043–1059.
8. C. Conley, S. Jackson, D. Kerr, A. Marks, B. Seward, and R. Tucker-Drob. Følner tilings for actions of amenable groups. *Math. Ann.* **371** (2018), 663–683.
9. D. Kerr, M. Lupini, and N. C. Phillips. Borel complexity and automorphisms of  $C^*$ -algebras. *J. Funct. Anal.* **268** (2015), 3767–3789.
10. D. Kerr. Bernoulli actions of sofic groups have completely positive entropy. *Israel J. Math.* **202** (2014), 461–474.
11. K. J. Dykema, D. Kerr, and M. Pichot. Sofic dimension for discrete measured groupoids. *Trans. Amer. Math. Soc.* **366** (2014), 707–748.
12. D. Kerr and H. Li. Combinatorial independence and sofic entropy. *Commun. Math. Stat.* **1** (2013), 213–257.
13. D. Kerr. Sofic measure entropy via finite partitions. *Groups Geom. Dyn.* **7** (2013), 617–632.
14. D. Kerr and H. Li. Soficity, amenability, and dynamical entropy. *Amer. J. Math.* **135** (2013), 721–761.
15. D. Kerr and P. Nowak. Residually finite actions and crossed products. *Ergodic Theory Dynam. Systems* **32** (2012), 1585–1614.
16. D. Kerr and H. Li. Entropy and the variational principle for actions of sofic groups. *Invent. Math.* **186** (2011), 501–558.
17. D. Kerr and H. Li. Bernoulli actions and infinite entropy. *Groups Geom. Dyn.* **5** (2011), 663–672.
18. D. Kerr, H. Li, and M. Pichot. Turbulence, representations, and trace-preserving actions. *Proc. London Math. Soc.* **100** (2010), 459–484.
19. J. Giol and D. Kerr. Subshifts and perforation. *J. reine angew. Math.* **639** (2010), 107–119.
20. D. Kerr and H. Li. On Gromov-Hausdorff convergence for operator metric spaces. *J. Operator Theory* **62** (2009), 83–109.
21. D. Kerr and H. Li. Combinatorial independence in measurable dynamics. *J. Funct. Anal.* **256** (2009), 1341–1386.
22. D. Kerr and M. Pichot. Asymptotic Abelianness, weak mixing, and property T. *J. reine angew. Math.* **623** (2008), 213–235.
23. D. Kerr and H. Li. Independence in topological and  $C^*$ -dynamics. *Math. Ann.* **338** (2007), 869–926.
24. D. Kerr. Generically infinite entropy in a simple AF algebra. *Bull. London Math. Soc.* **39** (2007), 265–271.
25. D. Kerr and H. Li. Positive Voiculescu-Brown entropy in noncommutative toral automorphisms. *Ergodic Theory Dynam. Systems* **26** (2006), 1855–1866.
26. D. Kerr and H. Li. Dynamical entropy in Banach spaces. *Invent. Math.* **162** (2005), 649–686.
27. D. Kerr. A geometric approach to Voiculescu-Brown entropy. *Can. Bull. Math.* **47** (2004), 553–565.
28. D. Kerr. Entropy and induced dynamics on state spaces. *Geom. Funct. Anal.* **14** (2004), 575–594.
29. D. Kerr. Matricial quantum Gromov-Hausdorff distance. *J. Funct. Anal.* **205** (2003), 132–167.
30. D. Kerr. Dimension and dynamical entropy for metrized  $C^*$ -algebras. *Comm. Math. Phys.* **232** (2003), 501–534.
31. D. Kerr and C. Pinzari. Noncommutative pressure and the variational principle in Cuntz-Krieger-type  $C^*$ -algebras. *J. Funct. Anal.* **188** (2002), 156–215.
32. V. G. LeBlanc, D. Kerr, and J. Wainwright. Asymptotic states of magnetic Bianchi  $VI_0$  cosmologies. *Class. Quantum Grav.* **12** (1995), 513–541.

**PAPERS SUBMITTED AND IN PREPARATION**

1. D. Kerr, G. Kopsacheilis, and S. Petrakos. Bauer simplices and the small boundary property. 14 pp. In preparation.
2. D. Kerr and S. Petrakos. McDuff factors from amenable actions and dynamical alternating groups. 13 pp. Submitted.
3. D. Kerr and P. Naryshkin. Almost finiteness and elementary amenability. 22 pp. Submitted.

**BOOK REVIEWS**

1. *Group Actions in Ergodic Theory, Geometry, and Topology: Selected Papers*. Robert J. Zimmer. Edited by David Fisher. University of Chicago Press, 2020. *Bull. Amer. Math. Soc.* **38** (2021), 627-634.

**SURVEY ARTICLES**

1. D. Kerr. C\*-algebras: structure and classification. *Snapshots of Modern Mathematics from Oberwolfach*, 18 pp. Mathematisches Forschungsinstitut Oberwolfach, 2021.
2. D. Kerr. An introduction to sofic entropy. In: *Recent Advances in Operator Theory and Operator Algebras*, pp. 83–116. CRC Press, 2018.
3. D. Kerr. Topological dynamics and C\*-algebras: finite approximation and paradoxicality. In: *Crossed Products of C\*-Algebras, Topological Dynamics, and Classification*, pp. 349–431. Birkhäuser, 2018.
4. D. Kerr. State space dynamics and entropy. The structure of operator algebras and its applications (Kyoto, 2002). *Suurikaisekikenkyuusho Koukyuuroku* **1300** (2003), 32–36.
5. D. Kerr. Noncommutative metric dimension and dynamical entropy. Recent aspects of C\*-algebras (Kyoto, 2002). *Suurikaisekikenkyuusho Koukyuuroku* **1291** (2002), 1–10.

**THESIS**

- Pressure for automorphisms of exact C\*-algebras and a noncommutative variational principle. University of Toronto, 2001.

**INVITED CONFERENCE TALKS AND LECTURE SERIES**

2024

- 3×60 minutes minicourse, Workshop on orbit equivalence, Station Biologique de Besse-en-Chandesse, France (Jul)
- Aspects of Ergodic Theory for Hyperbolic Groups, Leipzig University (Mar)

2023

- Hanseatic Dynamical Systems Days, Constructor University, Bremen (Dec)
- Operator Algebras and Mathematical Physics, University of Tokyo (Jul)
- Measured Group Theory, Stochastic Processes on Groups and Borel Combinatorics, CIRM, France (May)
- Groups of Dynamical Origins, Automata and Spectra, Les Diablerets, Switzerland (Mar)

2022

- Noncommutative Ergodic Theory, Kiel University, Germany (Oct)
- 3×40 minutes lecture series, Glasgow Late August Symbolic Dynamics, Groups, and Operators Workshop, University of Glasgow (Aug)

- $C^*$ -Algebras, Mathematisches Forschungsinstitut Oberwolfach, Germany (Aug)
- $3 \times 60$  minutes lecture series,  $C^*$ -dynamics and Set Theory in Paris, Institut Henri Poincaré, Paris (Jul)
- Session on Groups and Topological Dynamics, AMS-SMF-EMS Joint International Meeting, Université de Grenoble-Alpes, France (Jul)
- Canadian Operator Symposium, University of Ottawa (May-Jun)
- Operator Algebras and Group Dynamics, CIRM, France (May)

2021

- Minisymposium on Operator Algebras, 8th European Congress of Mathematics, Portorož, Slovenia (Jun)
- $4 \times 45$  minutes lecture series, Expanding Dynamics Summer School [online] (Jun)
- Expanding Dynamics XI [online] (Apr)
- Algebraic and Combinatorial Invariants of Subshifts and Tilings, CIRM, France (Jan) [remote]

2020

- Special Week on Operator Algebras, East China Normal University, Shanghai (Aug) [remote]

2019

- Brazos Analysis Seminar, Baylor University (Nov)
- Measurable, Borel, and Topological Dynamics, CIRM, France (Oct)
- Wabash Mini-conference, IUPUI, Indianapolis (Sep)
- $C^*$ -Algebras, Mathematisches Forschungsinstitut Oberwolfach, Germany (Aug)
- Geometry and Approximation, TU Dresden, Germany (Aug)
- 10-hour lecture series, Summer School on Dynamical Systems, Hebei Normal University, Shijiazhuang, China (Jul)
- Operator Algebras, Groups, and Applications to Quantum Information, ICMAT, Madrid (Jun)
- Groups of Dynamical Origin II, Institute of Mathematics, UNAM, Mexico City (Jan)

2018

- International Workshop on Operator Theory and Applications, East China Normal University, Shanghai (Jul)
- $L^2$ -Invariants and Their Analogues in Positive Characteristic, ICMAT, Madrid (Jul)
- NCGOA:  $C^*$ -Algebras and Dynamics, University of Münster, Germany (May)
- Approximation Properties in Operator Algebras and Ergodic Theory, IPAM, UCLA (Apr-May)
- 2 lectures, Scottish Operator Algebras Research meeting, University of Glasgow (Feb)
- Workshop: Entropies and Soficity, ENS de Lyon, France (Jan)
- 5-hour lecture series, Advanced School: Entropies and Soficity, ENS de Lyon, France (Jan)

2017

- Meeting of the ANR project GAMME, Saint-Jean-du-Gard, France (Oct)
- MASAs and Automorphisms of  $C^*$ -Algebras, Mathematisches Forschungsinstitut Oberwolfach, Germany (Sep)
- Satellite Conference on Operator Algebras, Mathematical Congress of the Americas, Fields Institute, Toronto (Aug)
- Session on Classification on Amenable  $C^*$ -Algebras, Mathematical Congress of the Americas, Montreal (Jul)
- Session on Topological Dynamics and Operator Algebras, Mathematical Congress of the Americas, Montreal (Jul)
- Mean Dimension and Sofic Entropy Meet Dynamical Systems, Geometric Analysis and Information Theory, Banff International Research Station, Canada (Jul)
- Von Neumann Algebras and Measured Group Theory, Institut Henri Poincaré, Paris (Jul)
- Ergodic Theory and Operator Algebras, Texas A&M University (Jun)

- Great Plains Operator Theory Symposium, Texas Christian University, Fort Worth (May)
- Session on Advances in Operator Algebras, Joint Mathematics Meetings, Atlanta (Jan)

2016

- Current Trends in Descriptive Set Theory, Erwin Schrödinger Institute, Vienna (Dec)
- $C^*$ -Algebras, Mathematisches Forschungsinstitut Oberwolfach, Germany (Aug)
- Operator Algebras and Mathematical Physics, Tohoku University, Sendai, Japan (Aug)
- Canadian Operator Symposium, Centre de Recherches Mathématiques, Montreal (Jun)
- Set Theory and Classification, Mittag-Leffler Institute, Sweden (Mar)
- Classification and Dynamical Systems I:  $C^*$ -Algebras, Mittag-Leffler Institute, Sweden (Feb)
- Measured Group Theory, Erwin Schrödinger Institute, Vienna (Feb)
- 4-hour lecture series, IPM, Tehran, Iran (Jan)

2015

- East Coast Operator Algebras Symposium, University of Iowa (Oct)
- Abel Symposium, MS Finnmarken, Norway (Aug)
- 6-hour lecture series, Fudan University, China (Jul)
- Workshop on  $C^*$ -Algebras: Geometry and Actions, University of Münster, Germany (Jul)
- 4.5-hour lecture series, Focus Programme on  $C^*$ -algebras, University of Münster, Germany (Jul)
- Noncommutative Geometry, Mathematisches Forschungsinstitut Oberwolfach, Germany (Jun)

2014

- Recent Advances in Operator Theory and Operator Algebras (conference), Indian Statistical Institute, Bangalore (Dec)
- 5-hour lecture series, Recent Advances in Operator Theory and Operator Algebras (workshop), Indian Statistical Institute, Bangalore (Dec)
- 4-hour lecture series, School on Orbit Equivalence and Related Fields, Universidad de Santiago de Chile (Dec)
- Von Neumann Algebras and Ergodic Theory, UCLA (Sep)
- Classification, Structure, Amenability and Regularity, University of Glasgow (Sep)
- 3-hour Minicourse on Dynamical Systems and  $C^*$ -Algebras, Fields Institute, Toronto (Jun)
- 6.5-hour Minicourse on Ergodic Theory, Chongqing University, China (May)
- Rice Dynamics Workshop, Rice University, Houston (Apr)
- Session on Fractal Geometry and Dynamical Systems, AMS Sectional Meeting, Texas Tech University, Lubbock (Apr)
- 3-hour graduate course, Introduction to  $C^*$ -Algebras and Dynamical Systems, Fields Institute, Toronto (Jan)

2013

- Descriptive Set Theory in Paris, Institut de Mathématiques de Jussieu, Paris (Dec)
- West Coast Operator Algebras Symposium, UC Davis (Oct)
- 4.5-hour lecture series, Topics in Operator Algebras and Applications, ICMAT, Madrid (Sep)
- $C^*$ -Algebren, Mathematisches Forschungsinstitut Oberwolfach, Germany (Aug)
- Group Theory, Measure, and Asymptotic Invariants, Mathematisches Forschungsinstitut Oberwolfach, Germany (Aug)
- 2.5-hour lecture series, Dynamics, Geometry, and Operator Algebras, Texas A&M University (Aug)
- Von Neumann Algebras and Measurable Group Theory, Leuven, Belgium (Jul)
- 5-hour lecture series, Focus Program on Noncommutative Geometry and Quantum Groups, Fields Institute, Toronto (Jun)
- Workshop on Operator Algebras - Takesaki 80, University of Tokyo (May)

- North American Annual Meeting of the Association for Symbolic Logic (plenary talk), Waterloo, Canada (May)
- Operator Algebras Spring Program, East China Normal University, Shanghai (Apr)
- The Structure and Classification of Nuclear  $C^*$ -Algebras, Edinburgh, UK (Apr)

## 2012

- Session on Operator Theory and Operator Algebras, CMS Winter Meeting, Montreal (Dec)
- 5-hour lecture series, Masterclass on Sofic groups and Applications to Operator Algebras, University of Copenhagen (Nov)
- 2 lectures, LaWiNe Seminar on Sofic Groups, EPFL, Lausanne, Switzerland (Nov)
- $C^*$ -Algebras, Dynamics, and Classification, Mathematisches Forschungsinstitut Oberwolfach, Germany (Oct-Nov)
- Workshop on Applications to Operator Algebras, Fields Institute, Toronto (Sep)
- Descriptive Set Theory and Functional Analysis, Banff International Research Station, Canada (Jun)
- Operator Spaces, Quantum Probability and Applications, Wuhan University (Jun)
- Chongqing Analysis Meeting, Chongqing University (Jun)
- Topology and Functional Analysis, Fudan University, Shanghai (May)
- 2 lectures, Topological and Algebraic Regularity Properties of Nuclear  $C^*$ -Algebras, University of Louisiana at Lafayette (May)
- Groups, Geometry, and Random Structures, Texas A&M University (Mar)
- Session on  $C^*$ -Algebras and Index Theory, AMS Sectional Meeting, University of Hawaii at Manoa (Mar)
- Session on Applications of Nonstandard Analysis, AMS Sectional Meeting, Univ. of Hawaii at Manoa (Mar)
- Workshop on Set Theory and  $C^*$ -Algebras, American Institute of Mathematics, Palo Alto (Jan)
- 7.5-hour lecture series, AGORA workshop on topological dynamics, Ferme de Courcimont, France (Jan)

## 2011

- Session on Operator Algebras, CMS Winter Meeting, Toronto (Dec)
- 3-hour lecture series, Minicourse on Operator Algebras, Fields Institute, Toronto (Dec)
- 10-hour lecture series, Advanced Course on Dynamical Systems, CRM, Barcelona (Jun)
- Workshop in honor of Eberhard Kirchberg's 65th birthday, University of Copenhagen (Nov)
- Conference on  $C^*$ -Algebras and Related Topics, RIMS, Kyoto University (Sep)
- Workshop on Positivity, Fields Institute, Toronto (Aug)
- Session on Operator Algebras, CMS Summer Meeting, University of Alberta, Edmonton (Jun)
- Canadian Operator Symposium, University of Victoria, Canada (May)
- Great Plains Operator Theory Symposium (plenary talk), Arizona State University (May)
- Texas Ergodic Theory Workshop, University of Houston (Mar)
- Session on Noncommutative Harmonic Analysis and Dynamical Systems, Joint Mathematics Meetings, New Orleans (Jan)

## 2010

- Pacific Institute for the Mathematical Sciences Distinguished Lecture, University of Regina, Canada (Nov)
- Wabash miniconference, IUPUI, Indianapolis (Oct)
- Workshop on Classification of Amenable  $C^*$ -Algebras, Banff International Research Station, Canada (Sep)
- Workshop on  $C^*$ -algebras, Midlands LMS Regional Meeting, Nottingham, UK (Sep)
- Concentration Week in Set Theory and Functional Analysis, Texas A&M University (Jul)
- Extended Workshop on Groups and Group Actions in Operator Algebra Theory, Univ. of Ottawa, Canada (Jul)
- 23rd Conference in Operator Theory (plenary talk), Timisoara, Romania (Jun-Jul)

- Workshop on Traveling Waves and Spreading Speeds in Evolution Systems, University of Science and Technology of China, Hefei (Jun)
- Workshop on Non-commutative Dynamics and Quantum Probability, University of Regina, Canada (May)
- $C^*$ -Algebras, Mathematisches Forschungsinstitut Oberwolfach, Germany (Mar)

2009

- Session on Operator Theory and Operator Algebras, Joint Meeting of the AMS and the Korean Mathematical Society, Seoul (Dec)
- Session on Ergodic Theory and Dynamical Systems, Joint Meeting of the AMS and the Korean Mathematical Society, Seoul (Dec)

2008

- Session on Operator Algebras, CMS Winter Meeting, Ottawa, Canada (Dec)
- East Coast Operator Algebras Symposium, Penn State University (Oct)
- $C^*$ -Algebras, Mathematisches Forschungsinstitut Oberwolfach, Germany (Aug)
- 2.5-hour lecture series, Concentration Week in Operator Algebras, Dynamics, and Classification, Texas A&M University (Aug)
- Journées Espaces  $L_p$  non-commutatifs, University of Franche-Comté, Besançon, France (May)
- Spring School in Groups and Dynamics, Les Diablerets, Switzerland (Mar)
- Workshop on  $C^*$ -Algebras Associated to Discrete and Dynamical Systems, Banff International Research Station, Canada (Jan)
- 3-hour lecture series, Análisis y Física-Matemática, Pachuca, Mexico (Jan)

2001–2007

- Workshop on Structure of  $C^*$ -Algebras, Fields Institute, Toronto (Nov 2007)
- Great Plains Operator Theory Symposium (plenary talk), University of Nebraska, Lincoln (May 2007)
- SUMIRFAS, Texas A&M University (Aug 2006)
- Workshop on Operator Theory and Operator Algebras, SUNY at Buffalo (Apr 2006)
- Session on Operator Algebras, CMS Winter Meeting, Victoria, Canada (Dec 2005)
- Workshop on Operator Theory and Operator Algebras, Kanagawa University, Yokohama, Japan (Nov 2004)
- Session on Operator Algebras, First Joint Canada-France Meeting of the Mathematical Sciences, Toulouse, France (Jul 2004)
- Session on Operator Algebras, CMS Winter Meeting, Vancouver, Canada (Dec 2003)
- Doctoral Prize lecture, CMS Winter Meeting, Ottawa, Canada (Dec 2002)
- Mini-workshop on Noncommutative Dynamical Systems and Geometry, University of Rome “Tor Vergata” (Nov 2002)
- The Structure of Operator Algebras and its Applications, RIMS, Kyoto University (Sep 2002)
- Recent Aspects of  $C^*$ -Algebras, RIMS, Kyoto University (Jan 2002)

#### COLLOQUIA, SEMINARS, AND OTHER CONFERENCE TALKS

2024

- Colloquium, University of Jena (Apr)
- Dresden Mathematical Seminar, University of Dresden (Apr)
- Seminar, Waseda University, Tokyo (Feb)

2023

- Topology Seminar, University of Münster (Nov)



- Colloquium, FAU Erlangen–Nürnberg (Nov)
- Colloquium, University of Bremen (Jun)
- Groups and Operator Algebras Seminar, University of Potsdam (Jun)
- Felix Klein Colloquium, University of Leipzig (Jan)

2022

- Antrittsvorlesung, University of Münster (Nov)
- Operator Algebra Seminar, KU Leuven, Belgium (Mar)
- CRC Colloquium, University of Münster (Feb)

2021

- Barcelona-Kiel Operator Algebras Seminar (Nov) [remote]
- Topology Seminar, University of Münster (Jul)
- Dynamics Seminar, University of Maryland (Feb) [remote]
- Functional Analysis Seminar, UCLA (Jan) [remote]

2020

- Ontario Operator Algebras Online Seminar (Sep) [remote]
- Inverse Problems and Analysis Seminar, University of Delaware (Sep)

2019

- SUMIRFAS, Texas A&M University (Jul)
- Groups and Dynamics Seminar, Texas A&M University (Mar)

2018

- Operator Algebra Seminar, Chongqing University (Jul)
- C\*-académie, University of Orléans, France (Mar)
- Geometry Topology Dynamics Seminar, Université Paris-Sud (Mar)
- Soirée du Collegium, Collegium de Lyon Institute for Advanced Study (Feb)
- Operator Algebra Seminar, University of Copenhagen (Feb)
- Geometry and Analysis Seminar, Queen Mary University of London (Feb)
- Functional Analysis Seminar, University of Paris 6 (Feb)

2017

- C\*-Algebra seminar, University of Münster, Germany (Dec)
- Operator Algebra Seminar, Université Paris Diderot (Nov)
- Théminaire, ENS de Lyon (Nov)
- Colloquium, Baylor University (Aug)
- Operator Algebra Seminar, University of Tokyo (Jun)
- Operator Algebra Seminar, Chongqing University (Jun)
- Analysis Seminar, Suzhou University (Jun)
- Noncommutative Geometry Seminar, Fudan University (Jun)

2016

- Linear Analysis Seminar, Texas A&M University (Sep)
- Noncommutative Geometry Seminar, Caltech (May)
- Functional Analysis Seminar, Shiraz University (Jan)

2015

- Operator Algebra Seminar, University of Tokyo (Jun)
- Subfactor Seminar, Vanderbilt University (Mar)
- Colloquium, Vanderbilt University (Mar)
- Colloquium, University of Louisiana at Lafayette (Jan)

2014

- Colloquium, Sam Houston State University (Oct)
- Millican Colloquium, University of North Texas (Feb)

2013

- Groups and Dynamics Seminar, Texas A&M University (Nov)
- Linear Analysis Seminar, Texas A&M University (Sep)
- Operator Algebra Seminar, Fields Institute, Toronto (May)
- Operator Algebra Seminar, University of Tokyo (Feb)

2012

- Groups and Dynamics Seminar, University of Texas at Austin (Oct)
- Seminar in the Workshop in Analysis and Probability, Texas A&M University (Jul)
- Colloquium, Chongqing University (Jun)

2011

- $C^*$ -Algebra Seminar, University of Münster, Germany (Nov)
- Colloquium, University of Münster, Germany (Nov)
- Analysis Seminar, University of Illinois at Urbana-Champaign (Oct)
- Colloquium, Purdue University (Oct)
- Groups and Dynamics Seminar, Texas A&M University (Sep)
- Conference on Structure and Classification of  $C^*$ -Algebras, CRM, Barcelona (Jun)
- Colloquium, University of Virginia (Mar)
- Groups and Dynamics Seminar, Texas A&M University (Feb)
- Ergodic Theory Seminar, Rice University (Feb)

2010

- Groups and Dynamics Seminar, Texas A&M University (Oct)
- Colloquium, SUNY at Buffalo (Feb)

2009

- Operator Algebra Seminar, University of Tokyo (Dec)
- Dynamical Systems Seminar, University of Houston (Nov)
- Groups and Dynamics Seminar, Texas A&M University (Sep)
- Funcional Analysis Seminar, Université de Paris 6 (Jun)

2008

- Pure Mathematics Seminar, Lancaster University, UK (Nov)
- Analysis Seminar, University of Nottingham, UK (Nov)
- Analysis Seminar, University of Glasgow, UK (Nov)
- Analysis Seminar, University of Houston (Oct)

- Groups and Dynamics Seminar, Texas A&M University (Oct)
- Colloquium, Texas A&M University (Sep)
- Operator Algebra Seminar, University of Tokyo (Jun)
- Ergodic Theory and Dynamical Systems Seminar, Université de Paris 13 (Jun)
- Functional Analysis Seminar, Université de Paris 6 (May)
- Operator Algebra Seminar, Université d'Orléans, France (May)
- Linear Analysis Seminar, Texas A&M University (Feb)

2007

- Analysis Seminar, University of Waterloo, Canada (Nov)
- Groups and Dynamics Seminar, Texas A&M University (Oct)
- Seminar on Banach Spaces and Related Topics, Texas A&M University (Oct)
- Barcelona Conference on  $C^*$ -Algebras and Their Invariants, CRM, Barcelona (Jun)
- Analysis Seminar, University of Houston (Apr)

2006

- Groups and Dynamics Seminar, Texas A&M University (Oct)
- Analysis Seminar, University of Houston (Apr)
- Analysis Seminar, SUNY at Buffalo (Apr)

2005

- Groups and Dynamics Seminar, Texas A&M University (Nov)
- Linear Analysis Seminar, Texas A&M University (Sep)
- Operator Algebra Seminar, Hokkaido University, Japan (Jul)
- Operator Algebra Seminar, Kyushu University, Japan (Jun)
- Operator Algebra Seminar, University of Tokyo (Apr)
- $C^*$ -Algebra Seminar, University of Oslo (Mar)
- Dynamics Seminar, University of Toronto (Jan)
- Operator Algebra Seminar, Fields Institute, Toronto (Jan)

2004

- Kansai Operator Algebra Seminar, Kyoto University (Dec)
- Operator Algebra Seminar, University of Tokyo (Oct)
- $C^*$ -Algebra Seminar, University of Münster, Germany (May)
- Colloquium, Texas A&M University (Feb)
- Analysis Seminar, Carleton University, Ottawa, Canada (Jan)
- Colloquium, University of Ottawa, Canada (Jan)
- Colloquium, York University, Toronto (Jan)

2003

- Postdoc Workshop, University of Münster, Germany (Oct)
- $C^*$ -Algebra Seminar, University of Münster, Germany (Oct)
- Operator Theory Seminar, University of Toronto (Jan)

2002

- Seminar series, University of Tokyo, Japan (May-Jun)
- Operator Algebra Seminar, Kyushu University, Japan (May)

- Operator Algebra Seminar, University of Tokyo (Apr)
- Operator Algebra Seminar, Osaka Kyoiku University, Japan (Jan)

2001

- Operator Algebra Seminar, University of Tokyo (Nov)

**CONFERENCES AND WORKSHOPS COORGANIZED**

- Probability, Dynamics, and the Geometry of Groups, University of Münster (Sep 2024)
- Totally Disconnected Locally Compact Groups: Local to Global, University of Münster (Oct 2023)
- Totally Disconnected Locally Compact Groups from a Geometric Perspective, University of Münster (Sep 2023)
- Summer School: Introduction to Totally Disconnected Locally Compact Groups, University of Münster (Sep 2023)
- Focus Programme: Actions of Totally Disconnected Locally Compact Groups on Discrete Structures, University of Münster (Sep–Oct 2023)
- Workshop on Operator Algebras and Applications: Symmetry and Structure, Fields Institute, Toronto (Sep 2023)
- Group Actions: Dynamics, Measure, Topology, University of Münster (Nov-Dec 2022)
- Groups and Dynamics: Topology, Measure, and Borel Structure, Mathematisches Forschungsinstitut Oberwolfach, Germany (Jan 2022)
- Topology and Measure in Dynamics and Operator Algebras, Banff International Research Station (Sep 2019)
- SUMIRFAS, Texas A&M University (Aug 2012, Aug 2013, Jul 2014, Jul-Aug 2015, Jul 2016, Jul 2017, Aug 2018, Jul 2019)
- Workshop on Operator Algebras, Geometry, and Actions, Banach Center, Warsaw (Sep 2017)
- Ergodic Theory and Operator Algebras, Texas A&M University (Jun 2017)
- Groups, Dynamics, and Operators Algebras, Queen Mary University of London (Jul 2016)
- Dynamics and C\*-Algebras: Amenability and Soficity, Banff International Research Station (Oct 2014)
- Groups, Groupoids, and Dynamics, Texas A&M University (Jun 2014)
- Thematic Program on Abstract Harmonic Analysis, Banach and Operator Algebras, Fields Institute, Toronto (Jan-Jun 2014)
- Arbeitsgemeinschaft on Sofic Entropy, Mathematisches Forschungsinstitut Oberwolfach, Germany (Oct 2013)
- Dynamics, Geometry, and Operator Algebras (Aug 2013)
- Operator Algebras, Frames, and Undergraduate Research, Texas A&M University (Jul 2012)
- Groups, Geometry, and Random Structures, Texas A&M University (Mar 2012)
- Set Theory and C\*-Algebras, American Institute of Mathematics, Palo Alto (Jan 2012)
- Session on Operator Algebras and Dynamical Systems, AMS Sectional Meeting, University of Nebraska, Lincoln (Oct 2011)
- Group Actions on Measure Spaces, Texas A&M University (Mar 2011)
- Concentration Week in Set Theory and Functional Analysis, Texas A&M University (Jul 2010)
- The seventh annual East Coast Operator Algebras Symposium, Texas A&M University (Oct 2009)
- Concentration Week in Operator Algebras, Dynamics, and Classification, Texas A&M University (Aug 2008)

**COURSES TAUGHT***University of Münster*

Ergodic Theory (summer 2021)	Topics in Functional Analysis (summer 2022)
Introduction to Functional Analysis (winter 2022-23)	Operator Algebras I (winter 2022-23)
Operator Algebras II (summer 2023)	Analysis I (winter 2023-24)
Analysis II (summer 2024)	Analysis III (winter 2024-25)

*Texas A&M University*

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|---|---|
| Math 151: Engineering Mathematics I (fall 2007, fall 2009, twice in fall 2010)  | Math 410: Advanced Calculus II (spring 2014, spring 2015)                       |
| Math 171: Calculus I (fall 2018, Honors version in fall 2016, fall 2018, fall 2019, and fall 2020)                                | Math 446: Principles of Analysis I (stacked version in fall 2015 and fall 2016) |
| Math 172: Calculus II (spring 2009)   | Math 607: Real Variables I (fall 2020)  |
| Math 220: Fundamentals of Discrete Mathematics (fall 2005)  | Math 608: Real Variables II (spring 2011 and spring 2019) and                   |
| Math 251: Engineering Mathematics III (fall 2006, spring 2007, spring 2008)   | Math 656: Functional Analysis II (spring 2012 and spring 2020)                  |
| Math 302: Discrete Mathematics (spring 2006)  | Math 663: Ergodic Theory (fall 2014 and fall 2019)                              |
| Math 308: Differential Equations (twice in fall 2008)   | Math 689: Topics in Dynamics and Analysis (fall 2007)                           |
| Math 409: Advanced Calculus I (stacked version in spring 2009 and spring 2012, twice in fall 2012, fall 2014, twice in fall 2015) | Math 689: Topics in Ergodic Theory (fall 2009)                                  |

*University of Tokyo*

Graduate course on Entropy, Dynamics, and Operator Algebras (spring 2013)

*University of Toronto*

Math 137: Calculus (summer 2001)

**Ph.D. STUDENTS SUPERVISED**

- Spyridon Petrakos (2022–), University of Münster
- Petr Naryshkin (2020–), Texas A&M University and University of Münster
- James O’Quinn (2018–), Texas A&M University and University of Münster
- Xin Ma (Ph.D. 2019), Texas A&M University
- March Boedihardjo (Ph.D. 2016), Texas A&M University (co-advisor)
- Timothy Rainone (Ph.D. 2015), Texas A&M University
- Mitchell Hitchcock (Ph.D. 2010), Texas A&M University

**MASTERS STUDENTS SUPERVISED**

- Ole Köpcke (2022), University of Münster

**SERVICE**

- Editor for Transactions of the American Mathematical Society (2022–)
- Managing Editor of Groups, Geometry, and Dynamics (2014–)
- Member of the Scientific Advisory Committee for the Thematic Program on Operator Algebras and Applications, Field Institute, Toronto (Jul–Dec 2023)
- Member of the Executive Committee (2010–2012, 2018–2019), Undergraduate Studies Committee (2009–2011), Outreach Committee (2011–2015), Graduate Program Committee (2013–2015, 2018–2020), Teaching Committee (2016–2017), Department of Mathematics, Texas A&M University
- Director (2013–2020), Associate Director (2012–2013), Workshop in Analysis and Probability, Texas A&M University
- Organizer of the Linear Analysis Seminar, Texas A&M University (fall 2007, 2009–spring 2011, spring 2012, fall 2013, 2014, fall 2015, fall 2016, spring 2017)

- Refereed articles for *Adv. Math.*, *Bull. London Math. Soc.*, *Bull. Symbolic Logic*, *Canad. J. Math.*, *Colloq. Math.*, *Comm. Math. Phys.*, *C. R. Math. Acad. Sci. Paris*, *Contemp. Math.*, *Erg. Th. Dynam. Sys.*, *Fund. Math.*, *Geom. Funct. Anal.*, *Groups Geom. Dyn.*, *Houston J. Math.*, *Internat. J. Math.*, *Int. Math. Res. Not.*, *Invent. Math.*, *Israel J. Math.*, *J. Anal. Math.*, *J. Dyn. Control Syst.*, *J. Eur. Math. Soc.*, *J. Funct. Anal.*, *J. Mod. Dyn.*, *J. Noncommut. Geom.*, *J. Pure Appl. Algebra*, *J. Reine Angew. Math.*, *J. Topol. Anal.*, *J. Topology*, *Linear Multilinear Algebra*, *Math. Annalen*, *Math. Scan.*, *Math. Z.*, *Münster J. Math.*, *Oper. Matrices*, *Proc. Amer. Math. Soc.*, *Proc. London Math. Soc.*, *Proc. Sympos. Pure Math.*, and *Trans. Amer. Math. Soc.*
- Reviewed for NSF, NSERC (Canada), ISF (Israel), and FWO (Belgium).
- External examiner on the Ph.D. defense committee of Ali Kavruk (advisor: Vern Paulsen), University of Houston, July 2011, and Damon Hay (advisor: David Blecher), University of Houston, April 2006
- Ph.D. committee member for Konrad Wrobel (graduated 2021), Alperen Ergur (graduated 2015), Wai Kit Chan (graduated 2015), Francisco Torres-Ayala (graduated 2012), Javier Alejandro Chávez Domínguez (graduated 2012), Jan Cameron (graduated 2009), and Alan Wiggins (graduated 2007), Texas A&M University
- Mentor in the NSF-supported Research Experience for Undergraduates (REU) program at Texas A&M University, summer 2012
- Coordinator of the math booth at the Physics & Engineering Festival, Texas A&M University, Mar. 2012, Mar. 2014, and Mar. 2015
- Volunteer at the Math Fair, Texas A&M University, Apr. 2012, Apr. 2015
- Talks aimed at middle school, high school, undergraduate, and graduate students:

*For graduate students:*

- Talks on functional analysis at Texas A&M for first-year graduate students, Dec. 2009, Sept. 2010, Oct. 2011, and Sept. 2015
- Talk on the complexity of classification problems in the Mathematics Graduate Student Organization seminar at Texas A&M University, Oct. 2008
- Talk on quantum metric spaces and topological approximation in the Mathematics Graduate Student Organization Seminar, Texas A&M University, Sept. 2006

*For undergraduate students:*

- Talk on amenability and paradoxical decompositions at a meeting of the Undergraduate Math Club at Texas A&M University, October 2012
- Talks on the complexity of classification problems at meetings of the Undergraduate Math Club at Texas A&M University, Sept. 2008, Nov. 2010, and January 2014
- Talk on the complexity of classification problems in the seminar series for students in the MCTP (Mentoring through Critical Transition Points) and REU (Research Experience for Undergraduates) summer programs at Texas A&M University, July 2008
- Talks on functional analysis at the Texas A&M graduate student recruitment weekend, Feb. 2008, Feb. 2010, and Feb. 2011
- Talk on Google, matrices, and random walks at Aggield Saturday and at the Texas A&M Department of Mathematics Freshmen Meeting, Feb. 2007

*For high school and middle school students:*

- Ran sessions on random walks and search engines in the Texas A&M Math Circle, Apr. 2012, Oct. 2016, and Oct. 2018
- Talk on Google, matrices, and random walks at the Texas A&M University High School Mathematics Tournament, Oct. 2006

- Organized and led sessions on Google, matrices, and random walks for SEE-Math, a summer enrichment program at Texas A&M University for incoming 6th, 7th, and 8th graders, June 2006, July 2007, and July 2009
- Mentor in the Mentorship Program for high school students, University of Toronto, 1996–2000.