

THERESE BASA LANDRY

University of California, Santa Barbara, Department of Mathematics
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EDUCATION

2022 PhD in Mathematics

- **Thesis:** *Towards Analysis on Fractals: Piecewise C^1 -Fractal Curves, Spectral Triples, and the Gromov-Hausdorff Propinquity*, University of California, Riverside.
- **Advisor:** Michel Lapidus.

2015 MA in Mathematics

- **Thesis:** *Multidimensional Continued Fractions, Roots of Unity, and Tilings*, San Francisco State University.
- **Advisor:** Yitwah Cheung.

2009 -2010 Summer Student at PROMYS for Teachers

- Graduate Credits in Mathematics from Boston University for Topics in Number Theory, Problem Solving in Number Theory, Research Methods in Mathematics, and Independent Study.
- **Independent Study:** *Converging Towards the Real: Narrowing Gyres of Continued Fractions and Ford Circles*.

2008 California Teaching Credential in Secondary Single Subject for Mathematics from the Los Angeles Unified School District - District Intern Program.

2005 BS in Mathematics-Physics from Brown University.

2003 Spring Semester Student at Budapest Semesters in Mathematics.

RESEARCH INTERESTS

Fractal Geometry, Noncommutative Geometry, Operator Algebras, Calculus of Variations, Optimal Transport

ACADEMIC EMPLOYMENT

- January 2023** - Visiting Assistant Professor at University of California, Santa Barbara (Santa Barbara, CA).
- Spring 2025** Postdoctoral Fellow, Institute for Pure and Applied Mathematics at UCLA (Los Angeles, CA).
- Spring 2025** Visiting Scholar at University of California, Los Angeles (Los Angeles, CA).
- July** - Postdoctoral Fellow, The Fields Institute for Research in Mathematical Sciences (Toronto, Ontario, Canada).
- Spring 2022** Postdoctoral Fellow, Mathematical Sciences Research Institute (Berkeley, CA).
- Spring 2022** Visiting Scholar at University of California, Berkeley (Berkeley, CA).
- Summer 2021** Primary Instructor at University of California, Riverside (Riverside, CA).
- 2015-2021** Graduate Teaching Assistant at University of California, Riverside (Riverside, CA).
- Spring 2018** Primary Instructor at University of California, Riverside (Riverside, CA).
- 2013-2015** Primary Instructor at San Francisco State University (San Francisco, CA).
- 2013-2015** Graduate Teaching Assistant at San Francisco State University (San Francisco, CA).
- July 2014** Graduate Teaching Assistant for the Undergraduate Summer School at the Institute for Advanced Study/Park City Mathematics Institute (Park City, UT).
- 2013** Summer Research Position at the California State University, Chico Research Experience for Undergraduates and Teachers.

- 2004** Summer Research Position with the Brown University Graphics Lab (Providence, RI).
- 2003** Summer Research Position at the Trinity-Graz Research Experience for Undergraduates (Graz, Austria and San Antonio, TX).
- 2001** Summer Research Position with the Brown High Energy Physics Group (Providence, RI).

PUBLICATIONS AND PREPRINTS

- Quantum Wasserstein distances for quantum permutation groups** with Anshu and David Jekel, *The Journal of Geometry and Physics*, **217**, (2025)
- Existence theorems for PDEs modeling erosion and the optimal transport of sediment** with Björn Birnir, *Analysis and Mathematical Physics*, **15**(107), (2025)
- Spectral triples for noncommutative solenoids and a Wiener’s lemma** with Carla Farsi, Nadia S. Larsen, and Judith A. Packer, *Journal of Noncommutative Geometry*, **18**(4), 1415-1452 (2024)
- Metric approximations of spectral triples on the Sierpiński gasket and other fractal curves** with Michel Lapidus and Frédéric Latrémolière, *Advances in Mathematics*, **385**, July 16, 2021, Article 107771
- Perfect congruences on bisimple ω -semigroups**, with Simon M. Goberstein, Katherine Grimshaw, Anthony Kling, and Freda Li, *Semigroup Forum*, **91**, 117–127 (2015)

EDITED BOOKS

- Fractal Geometry in Pure and Applied Mathematics*, Contemporary Mathematics Series **828**, with Hafedh Herichi, Maria Rosaria Lancia, Anna Rozanova-Pierrat, and Steffen Winter, American Mathematical Society, Expected Availability Date: November 15, 2025

HONORS AND AWARDS

- 2023** Long-Term Visitor Funding at the Thematic Program on Operator Algebras and Applications, The Fields Institute for Research in Mathematical Sciences.
- 2021** Dissertation Year Fellowship, University of California, Riverside.
Merit Award sponsored by the Graduate Division.
- 2020** Vernon A. Kramer Memorial Service Award, University of California, Riverside.
Community Service Award sponsored by the Mathematics Department.
- 2019** Graduate Research Mentorship Fellowship, University of California, Riverside.
Merit Award sponsored by the Graduate Division.
- 2017** Early Promise in the Graduate Career Prize, University of California, Riverside.
Merit Award sponsored by the Mathematics Department.
- 2016-2017** Chancellor’s Distinguished Fellowship, University of California, Riverside.
Merit Award sponsored by the Graduate Division.
- 2014** YLM Chang Memorial Scholarship for Excellence in Mathematics, San Francisco State University.
Merit Scholarship sponsored by the Mathematics Department.
- 2014** University Scholarship, San Francisco State University.
Merit Scholarship sponsored by the University.
- 2013** Milowski Scholarship, San Francisco State University.
Merit Scholarship sponsored by the Mathematics Department.
- 2002** Undergraduate Teaching and Research Award, Brown University.
Summer Stipend to study elliptic curves with Dr. Matthew Papanikolas.

INVITED TALKS

- November 2025** Functional Analysis Seminar, University of California, San Diego (San Diego, CA).
- May 2025** Statistical and Numerical Methods for Optimal Transport Workshop, Institute for Pure and Applied Mathematics (Los Angeles, CA).
- January 2025** AWM Special Session on Women in Operator Algebras at the 2025 Joint Mathematics Meetings (Seattle, WA).
- October 2023** Plenary Speaker at the East Coast Operator Algebras Symposium 2023, Purdue University (West Lafayette, Indiana).
- June 2023** Scientific Session on Noncommutative Geometry and Mathematical Physics at the 2023 Canadian Mathematical Society Summer Meeting (Ottawa, Ontario, Canada).
- May 2023** Plenary Speaker at the Canadian Operator Algebra Symposium 2023, University of Western Ontario (London, Ontario, Canada).
- May 2023** Special Session on Advances in Functional Analysis and Operator Theory at the AMS Spring Western Sectional Meeting, California State University, Fresno (Fresno, CA).
- April 2023** Special Session on Interactions between Analysis, PDE, and Probability in Non-Smooth Spaces at the AMS Spring Central Sectional Meeting, University of Cincinnati (Cincinnati, OH).
- January 2023** Special Session on Advances in Operator Algebras III at the 2023 Joint Mathematics Meetings (Boston, MA).
- January 2023** Special Session on Special Session on Summer Research in Mathematics (SRiM): Dynamics and Operator Algebras I at the 2023 Joint Mathematics Meetings (Boston, MA).
- December 2022** Operator Algebras Seminar, University of Ottawa (Ottawa, Ontario, Canada).
- December 2022** Scientific Session on Facets of Operator Algebras at the 2022 Canadian Mathematical Society Winter Meeting (Toronto, Ontario, Canada).
- November 2022** Low Regularity Physics and Geometry Seminar, The Fields Institute for Research in Mathematical Sciences (Toronto, Ontario, Canada).
- November 2022** Noncommutative Geometry and Topology Seminar (Prague, Czech Republic).
- October 2022** Speaker at the Modern Math Workshop Representing the Mathematical Sciences Research Institute at the 2022 Society for the Advancement of Chicanos/Hispanics and Native Americans in Science National Diversity in STEM Conference (San Juan, Puerto Rico).
- September 2022** Mathematical Physics: Experiment, Structure, and Framework Seminar, University of California, Riverside (Riverside, CA).
- April 2022** Special Session on Advances in Operator Algebras at the 2022 Joint Mathematics Meetings (Seattle, WA).
- March 2022** The Analysis and Geometry of Random Spaces Seminar, Mathematical Sciences Research Institute (Berkeley, CA).
- March 2022** Functional Analysis Seminar, University of California, San Diego (San Diego, CA).
- December 2021** Quantitative Linear Algebra Reunion Conference II sponsored by the Institute for Pure and Applied Mathematics at the UCLA Lake Arrowhead Conference Center (Lake Arrowhead, CA).
- October 2021** 2TART Seminar Series and Conference, University of Florida (Gainesville, FL).
- September 2021** C^* Seminar, Arizona State University and Embry-Riddle Aeronautical University (Phoenix, AZ).
- June 2021** Session on Noncommutative Geometry and Mathematical Physics at the Canadian Mathematical Society 75th+1 Anniversary Summer Meeting, University of Ottawa (Ottawa, Ontario, Canada).
- May 2021** Special Session on Advances in Functional Analysis and Operator Theory at the AMS Spring Western Sectional Meeting, San Francisco State University (San Francisco, CA).
- March 2021** Math Colloquium Series, University of Montana (Missoula, MT).
- February 2021** Operator Algebras Seminar, Purdue University (West Lafayette, IN).

- February 2021** Probabilistic Operator Algebra Seminar, University of California, Berkeley (Berkeley, CA).
- October 2020** Functional Analysis and Mathematical Physics Interdepartmental Research Group Fall 2020 Colloquium Series, California State University, Fresno (Fresno, CA).
- January 2020** Special Session on Noncommutative Geometry and Applications II at the 2020 Joint Mathematics Meetings (Denver, CO).
- December 2019** Quantitative Linear Algebra Reunion Conference I sponsored by the Institute for Pure and Applied Mathematics at the UCLA Lake Arrowhead Conference Center (Lake Arrowhead, CA).
- November 2019** Special Session on Advances in Functional Analysis II at the AMS Fall 2019 Western Sectional Meeting, University of California, Riverside (Riverside, CA).
- October 2018** Plenary Speaker at the 2018 West Coast Operator Algebras Symposium, Seattle University (Seattle, WA).
- June 2018** Quantitative Linear Algebra Culminating Conference sponsored by the Institute for Pure and Applied Mathematics at the UCLA Lake Arrowhead Conference Center (Lake Arrowhead, CA).
- November 2017** Special Session on Analysis and Geometry of Fractals at the AMS Fall 2017 Western Sectional Meeting, University of California, Riverside (Riverside, CA).

CONTRIBUTED TALKS

- April 2025** Southern California Applied Math Symposium, University of California, Riverside (Riverside, CA).
- June 2022** 7th Cornell Conference on Analysis, Probability, and Mathematical Physics on Fractals, Cornell University (Ithaca, NY).
- May 2021** Great Plains Operator Theory Symposium, Washington University in St. Louis (St. Louis, MO).
- October 2018** Fractal Geometry and Stochastics 6, Bad Herrenalb (Black Forest), Germany.
- June 2017** 6th Cornell Conference on Analysis, Probability, and Mathematical Physics on Fractals, Cornell University (Ithaca, NY).
- July 2013** Research Experience for Undergraduates and Teachers Seminar, California State University, Chico (Chico, CA).
- December 2011** PROMYS for Teachers Seminar, Educational Development Center (Newton, MA).
- November 2010** California Mathematics Council South Conference (Palm Springs, CA).
- October 2010** PROMYS for Teachers Seminar, Educational Development Center (Newton, MA).
- August 2010** PROMYS for Teachers Seminar, Educational Development Center (Newton, MA).
- September 2003** Big Sky Conference on Discrete Mathematics, University of Montana (Missoula, MT).

CONFERENCES, WORKSHOPS, INSTITUTES

- July 2023** Undergraduate Faculty Program at the 2023 Institute for Advanced Study/Park City Mathematics Institute on Quantum Computation (Park City, UT).
- June 2023** Workshop 23w5089 Women in Operator Algebras III, Banff International Research Station (Banff, Alberta, Canada).
- June 2022** Broadening Participation: 2022 National Science Foundation Directorate for Mathematical and Physical Sciences Workshop for Young Investigators with Mock Panel Grant Reviewer Training Sessions (Alexandria, VA).
- December 2021** Workshop 21w5199 Women in Operator Algebras II, Banff International Research Station (Banff, Alberta, Canada).
- July 2021** Mathematical Sciences Research Institute Graduate Summer School in Random Conformal Geometry (Berkeley, CA).

- June 2021** American Institute of Mathematics Latinx Mathematicians Research Community Kick-off Research Workshop, Project: Codes from Geometry, Research Mentors: Adriana Salerno and Tony Várilly-Alvarado (San Jose, CA).
- August 2019** Workshop on New Geometry of Quantum Dynamics at the Fields Institute for Research in Mathematical Sciences (Toronto, ON).
- May 2019** Seventeenth Spring Institute on Noncommutative Geometry and Operator Algebras at Vanderbilt University (Nashville, TN).
- May 2018** Approximation Properties in Operator Algebras and Ergodic Theory Workshop at the Institute for Pure and Applied Mathematics (Los Angeles, CA).
- June 2015** Chicago Summer School in Geometry and Topology at the University of Chicago (Chicago, IL).
- July 2014** Mathematical Sciences Research Institute Graduate Summer School at the at the 2014 Institute for Advanced Study/Park City Mathematics Institute on Mathematics and Materials (Park City, UT).
- July 2011** Secondary School Teachers Program at the 2011 Institute for Advanced Study/Park City Mathematics Institute on Moduli Spaces of Riemann Surfaces (Park City, UT).

TEACHING EXPERIENCE

- January 2023 - University of California, Santa Barbara** (Santa Barbara, CA)
Primary Instructor
 Calculus, Multivariable Calculus, Introduction to Proof-Writing, Linear Algebra (upper division), Chaotic Dynamics and Bifurcation Theory (upper division), Partial Differential Equations A (upper division), Theory of Complex Variables A (upper division), Theory of Complex Variables B (upper division)
- Winter 2025 - University of California, Santa Barbara** (Santa Barbara, CA)
Undergraduate Research Advisor and Mentor
 -Currently mentoring an undergraduate researcher in dataset analysis for fluvial landscape digital elevation models with the aim of studying scaling laws.
- Summer 2021 University of California, Riverside** (Riverside, CA)
Primary Instructor
 Introduction to Set Theory (upper division)
- 2015-2021 University of California, Riverside** (Riverside, CA)
Graduate Teaching Assistant
 Precalculus, Business Calculus, Calculus, Multivariable Calculus, Differential Equations, Discrete Mathematics
- Spring 2021 University of California, Riverside** (Riverside, CA)
Undergraduate Research Advisor and Mentor
 -Designed an undergraduate research project in fractal geometry.
 - Adapted the research plan as necessary to accommodate diverse student strengths and backgrounds.
 -Facilitated the development of a growth mindset towards problem-solving and effective mathematical communication.
- Spring 2020 University of California, Riverside** (Riverside, CA)
Undergraduate Research Advisor and Mentor
 -Designed an undergraduate research project in fractal geometry, adapted the direction of the research plan to maximize the strengths of the students assigned after its proposal, and created solutions to meet the shifting demands of remote supervision during a worldwide pandemic.
 - Trained students in problem-solving and the scientific mindset, effective verbal and written communication of mathematical research ideas, and collaborative practices for applying scientific principles, thereby facilitating a successful culminating research presentation to the mathematics department.
- Spring 2018 University of California, Riverside** (Riverside, CA)
Primary Instructor
 Introduction to College Mathematics II

- 2013-2015 San Francisco State University** (San Francisco, CA)
Primary Instructor
 Precalculus
- 2013-2015 San Francisco State University** (San Francisco, CA)
Graduate Teaching Assistant
 Calculus (all levels)
- 2014 Undergraduate Summer School at the Institute for Advanced Study/Park City Mathematics Institute** (Park City, UT)
Graduate Teaching Assistant
 -Led daily problem sessions for Marjorie Senechal's *Modeling Materials Discretely* course.
- 2006-2013 Orthopaedic Hospital Medical Magnet High School** (Los Angeles, CA)
Teacher
 -Designed Algebra II, Geometry, and Precalculus lessons supporting the medical magnet theme.
- Department Chair (2012-2013)
 - School Site Council and Budget Allocation Committee (2010-2013)
 - Math Competition Team Coach (2006 - 2008)
- 2012 Linear Algebra and Geometry Summer Institute at the Educational Development Center** (Waltham, MA)
Participating High School Teacher
 -Selected to field test the *Linear Algebra and Geometry* high school curriculum.
- 2011 Klein Project Workshop at the American Institute of Mathematics** (Palo Alto, CA)
Participating High School Teacher
 -Collaborated with mathematicians and educators in writing vignettes communicating to secondary teachers definitive advances in mathematics within the last hundred years.
- 2001-2004 Brown University Math Resource Center** (Providence, RI)
Tutor
 Calculus (all levels)
- 2001-2004 Brown University** (Providence, RI)
Teaching Assistant and Homework Grader
 Calculus (Infinite Series), Calculus (Multivariable), Number Theory

SERVICE AND OUTREACH

- 2023 -** Co-Organizer for Women in Operator Algebras IV, International Center for Mathematical Sciences (Edinburgh, United Kingdom).
- 2025** Co-Organizer for West Coast Operator Algebras Symposium, Pomona College (Claremont, California).
- 2023-2024** Co-Organizer for Operator Algebras Seminar, Fields Institute (Toronto, Ontario, Canada).
- 2021 - 2023** Co-Organizer for Workshop 23w5089 Women in Operator Algebras III, Banff International Research Station (Banff, Alberta, Canada).
- Spring 2022** Co-Organizer for Career Development Seminars for Spring 2022 Postdoctoral Fellows at the Mathematical Sciences Research Institute (Berkeley, CA).
- 2020 - 2022** Co-Organizer for the Special Session on Fractal Geometry in Pure and Applied Math at the 2022 American Mathematical Society-Société Mathématique de France-European Mathematical Society Joint International Meeting (Grenoble, France).
- 2017 - 2021** Organizer for the Fractal Research Group and Mathematical Physics and Dynamical Systems Seminars at University of California, Riverside (Riverside, CA).
- November 2019** Student Research Presenter at the Graduate Student Open House Recruitment Event for the UC Riverside Mathematics Department (Riverside, CA).
- October 2019** Student Research Presenter at the Graduate Student Open House Recruitment Event for the UC Riverside Mathematics Department (Riverside, CA).
- November 2018** Graduate Student Representative for the UC Riverside Mathematics Department at the Math Alliance Field of Dreams 2018 Conference (St. Louis, MO).

- 2017 - 2018** President of the UC Riverside Chapter of the Association for Women in Mathematics (Riverside, CA).
- 2014 - 2015** Member of the Parent Advisory Committee for the Associated Students, Inc., of SF State Early Childhood Education Center (San Francisco, CA).
- 2014 - 2015** Parent Volunteer at the German Saturday School of San Francisco (San Francisco, CA).
- 2008 - 2020** Member of Blessed Sacrament Choir (Hollywood, CA).
- Performed the *Verdi Requiem* at a Wounded Warriors Project Benefit (Memorial Day 2014).
 - Performed the *Mozart Requiem* at Carnegie Hall (Memorial Day 2013).
- 2002 - 2004** Participant in the Brown University Mathematics Departmental Undergraduate Group (Providence, RI).
- Coordinated *Brown Symposium for Undergraduates in the Mathematical Sciences 2004* (2003-2004).
 - Researched and designed a weekly submission to the *Brown Daily Herald* involving a mathematics fun fact and puzzle(2002-2003).
- 2000-2002** Physics Affinity Group Leader for Brown University Women in Science and Engineering (Providence, RI).
- 2000-2002** Vice President of the Brown University Physics Departmental Undergraduate Group (Providence, RI).

PROFESSIONAL AFFILIATIONS

- Latinx Mathematicians Research Community sponsored by the American Institute of Mathematics
- Operator Algebras Mentor Network
- Indigenous Mathematicians (formerly known as and expanded from Pacific Islanders in Mathematics)
- American Mathematical Society

REFERENCES

- Dr. Björn Birnir, Professor and Chair of Mathematics and Director of Center for Complex and Nonlinear Science at University of California, Santa Barbara, birnir@math.ucsb.edu
- Dr. Sarah Reznikoff, Professor and Chair of Mathematics at Virginia Tech, Blacksburg, Virginia, reznikoff@vt.edu
- Dr. Tryphon Georgiou, Distinguished Professor, Department of Mechanical and Aerospace Engineering at University of California, Irvine, tryphon@uci.edu
- Dr. Konrad Aguilar, Assistant Professor, Mathematics and Statistics Department at Pomona College, konrad.aguilar@pomona.edu
- Dr. Christopher Ograin, Associate Professor of Teaching, Department of Mathematics and Department of Education at University of California, Santa Barbara, ograin@ucsb.edu
- Dr. Michel Lapidus, Distinguished Professor, Department of Mathematics at University of California, Riverside, lapidus@math.ucr.edu
- Dr. Fred Wilhelm, Professor, Department of Mathematics at University of California, Riverside, fred@math.ucr.edu