

Srivatsav Kunnawalkam Elayavalli

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EDUCATION

Vanderbilt University

PhD candidate in Mathematics

Advisor: Jesse Peterson

Doctoral Thesis: *Free Entropy Theory and Rigidity of von Neumann Algebras*.

Expected May 2022

University of California, Berkeley

AB in Pure Mathematics (*Highest Honors*)

Bachelors Thesis Supervisors: Dan-Virgil Voiculescu, Brent Nelson

May 2018

PUBLICATIONS/PREPRINTS

1. (with I. Goldbring and Y. Lodha) *Generic algebraic properties in spaces of enumerated groups*. October 2021 preprint available at: <https://arxiv.org/abs/2006.14048>
2. (with B. Hayes and D. Jekel) *Vanishing cohomology and strong 1-boundedness for von Neumann algebras*. October 2021 preprint available at: <https://arxiv.org/abs/2110.12324>
3. (with I. Chifan) *Cartan subalgebras in von Neumann algebras associated to graph product groups*. July 2021 preprint available at: <https://arxiv.org/abs/2107.04710>
4. (with B. Hayes and D. Jekel) *Property T and strong 1-boundedness for von Neumann algebras*. July 2021 preprint available at: <https://arxiv.org/abs/2107.03278>
5. (with C. Ding) *Proper proximality for various families of groups*. July 2021 preprint available at: <https://arxiv.org/abs/2107.02917>
6. (with S. Atkinson and I. Goldbring) *Factorial relative commutants and the generalized Jung property for II_1 factors*.
Advances in Mathematics. Volume 396 (2022), Paper No. 108107.
7. (with S. Atkinson) *On ultraproduct embeddings and amenability for tracial von Neumann algebras*.
International Mathematics Research Notices, Volume 2021, Issue 4, February 2021, Pages 2882-2918,

GRANTS

IPAM Simons Postdoctoral Fellowship

University of California, Los Angeles

July 2022

Los Angeles CA

AIM SQUARE Grant

American Institute of Mathematics

April 2022

San Jose CA

Russel G. Hamilton GLI Dissertation Enhancement Grant

The Graduate School, Vanderbilt University

August 2021

Nashville TN

Graduate Student Travel Award

AMS Joint Math Meetings

January 2021

Washington DC

HONORS

Harold Stirling Vanderbilt Award <i>The Graduate School, Vanderbilt University</i>	April 2021 Nashville TN
University Graduate Fellowship and Russel G Hamilton Scholarship <i>The Graduate School, Vanderbilt University</i>	2018-2021 Nashville, TN
Dorothea Klumpke Roberts Prize in Mathematics <i>University of California, Berkeley</i>	May 2018 Berkeley, CA
Phi Beta Kappa Nomination <i>University of California, Berkeley</i>	May 2018 Berkeley, CA
High Distinction in the College of Letters & Science <i>University of California, Berkeley</i>	May 2018 Berkeley, CA
Magas Kitűntetessel Award <i>Budapest Semesters in Mathematics</i>	August 2015 Budapest, Hungary
Regional Mathematical Olympiad, Rank 1 <i>Tamil Nadu</i>	May 2013 Chennai, India

TALKS IN RESEARCH SEMINARS

1. “Properly proximal groups”, March 2022. Functional Analysis Seminar, Waterloo University.
2. “Properly proximal von Neumann algebras”, February 2022. Functional Analysis Seminar, University of Virginia, Charlottesville.
3. “Strong 1-boundedness and Property T”, November 2021. Quantum symmetries seminar, The Ohio State University.
4. “Proper proximality for groups acting on trees”, October 2021. Geometric group theory seminar, The Ohio State University.
5. “Strong 1-boundedness and Property T”, October 2021. Functional Analysis Seminar, UC San Diego.
6. “Strong 1-boundedness and Property T”, October 2021. Functional Analysis Seminar, University of Waterloo.
7. “Proper proximality for groups acting on trees”, September 2021. Topology and Group Theory Seminar, Vanderbilt University.
8. “Proper proximality for groups acting on trees”, September 2021. Functional Analysis Seminar, Purdue University.
9. “Strong 1-boundedness and Property T”, September 2021. Subfactor Seminar, Vanderbilt University.
10. “Strong 1-boundedness and Property T”, September 2021. Probabilistic Operator Algebras Seminar, UC Berkeley.
11. “A primer on proper proximality”, April 2021. Topology and Group Theory Seminar. Vanderbilt University.
12. “On heirs”, February 2021. Subfactor Seminar, Vanderbilt University.
13. “Inclusions of separable II_1 factors in ultraproducts”, January 2021. ASU C^* seminar.
14. “Genericity in spaces of enumerated groups”, July 2020. Group Actions Seminar: Charlottesville-Lausanne-Seoul.
15. “A generic solution to the von Neumann-Day problem”, July 2020. Groups and Dynamics seminar, Texas A&M university.
16. “On Jung type behavior in II_1 factors”, May 2020. Subfactor Seminar, Vanderbilt University.

17. “Jungle of II_1 factors”, February 2020. Analysis Seminar, Michigan State University, East Lansing.
18. “On Jung’s theorem and beyond”, January 2020. Operator Theory Seminar, University of Virginia, Charlottesville.
19. “Non amenable II_1 factors embed wildly into ultraproducts”, November 2019. Probabilistic Operator Algebras Seminar, UC Berkeley.
20. “A plethora of embeddings into an ultraproduct of II_1 factors”, September 2019. Subfactor Seminar, Vanderbilt University.

TALKS IN CONFERENCES

1. “Properly proximal von Neumann algebras”, March 2022. AMS Sectional Meeting, Purdue University.
2. “A mystery on groups”, December 2021. Lake Arrowhead retreat for QLA 2018, UCLA.
3. “Proper proximality of groups acting on trees”, August 2021. YMC*A. Munster, Germany.
4. “(Expository) Amenability for von Neumann algebras”, July 2021. GOALS, MSU.
5. “Proper proximality of groups acting on trees”, June 2021. Beyond Hyperbolicity. The Ohio State University.
6. “Generalizing Jung’s theorem”, May 2021. GPOTS, WUSTL.
7. “Factorial commutants and applications”, February 2021. Brazos Analysis Seminar. Texas Christian University.
8. “Factorial commutants and applications”, February 2021. Wabash Early Career Workshop. IUPUI.
9. “Representing II_1 factors in ultraproducts”, January 2021. JMM: Joint Math Meetings, American Mathematical Society. Washington DC.
10. “Generalizing Jung’s theorem”, December 2020. UK virtual operator algebras seminar.

RESEARCH INTERESTS

Operator Algebras: finitary approximations, free probability theory, deformation-rigidity theory, quantum groups, operator bimodules/spaces/systems.

Group Theory: geometric and combinatorial group theory, sofic groups.

Ergodic Theory: dynamics of group actions on compact spaces.

Model Theory: model theory of operator algebras, first order theory of groups.

TEACHING

Teaching Assistant <i>Math 1301 Calculus, Vanderbilt University</i>	Spring 2022 <i>Nashville, TN</i>
Teaching Assistant <i>Math 1200 Calculus, Vanderbilt University</i>	Fall 2021 <i>Nashville, TN</i>
Teaching Assistant <i>Math 2300 Multivariable Calculus, Vanderbilt University</i>	Spring 2021 <i>Nashville, TN</i>
Teaching Assistant <i>Groundwork in Operator Algebras Learning Seminar (GOALS)</i>	Summer 2020 <i>East Lansing, MI</i>
Teaching Assistant <i>Math 1300 Calculus, Vanderbilt University</i>	Spring 2020 <i>Nashville, TN</i>
Grader <i>Math 3320 Error correcting codes and cryptography, Vanderbilt University</i>	Fall 2019 <i>Nashville, TN</i>
Undergraduate Student Instructor (UGSI)	Aug 2017 - Dec 2017

Math 185 Complex Analysis, UC Berkeley

Berkeley, CA

Reader

University of California, Berkeley

Fall 2015 - Fall 2017

Berkeley, CA

Counselor

PROMYS Program, Boston University

Summer 2016

Boston, MA

WORKSHOPS AND CONFERENCES ATTENDED

AMS Special Session

Purdue University

March 26th to March 27th, 2022

West Lafayette, IN

Groundwork in Operator Algebras Lecture Series

Michigan State University

July 21st to July 25th, 2021

East Lansing, MI

Beyond Hyperbolicity

The Ohio State University

June 28th to July 3rd, 2021

Columbus, OH

Great Plains Operator Theory Symposium (GPOTS)

WUSTL (virtual)

May 5th, 2020

Missouri

Wabash Early Career Workshop in OA/OT

IUPUI (virtual)

February 21st, 2020

Indiana

AMS Joint Mathematical Meetings

Washington DC (virtual)

January 7th, 2020

Washington DC

48th Canadian Operator Symposium (COSy)

Fields' Institute, University of Toronto

May 24 to May 29, 2020

Toronto, ON (Canada)

Classification problems in von Neumann algebras

Banff International Research Station

Sept 29 to Oct 4, 2019

Banff, Alberta (Canada)

Focus Program on Non Commutative Functions

Fields Institute, University of Toronto

June 17 to 21, 2019

Toronto, ON (Canada)

Shanks Workshop: Free Probability and Applications

Vanderbilt University

September 14 to 15, 2018

Nashville, TN

Approximations in ergodic theory and von Neumann algebras

Institute of Pure and Applied Mathematics

March 19 to June 15, 2018

Los Angeles, CA

Quantitative Linear Algebra Tutorials

Institute of Pure and Applied Mathematics

March 19th to March 30, 2018

Los Angeles, CA

Extended Probabilistic Operator Algebras Seminar

University of California, Berkeley

November 10 to 12, 2017

Berkeley, CA

Summer Session on Random Matrices

Park City Math Institute

June, July 2017

Park City, UT

Subfactors, Planar Algebras, Random Matrices and Quantum Symmetries

Mathematical Sciences Research Institute

June 2017

Berkeley, CA

RESEARCH VISITS

(with Adrian Ioana) Ultraproducts of von Neumann algebras

Summer 2022

University of California, San Diego La Jolla, CA

(with Ionut Chifan) Classification of group von Neumann algebras

March 5th to March 15th, 2022

University of Iowa Iowa City, IA

(with Arman Darbinyan) Boone-Higman property for spaces of enumerated groups

November 11th to November 20th, 2021

TAMU College Station, TX

(with Ionut Chifan) Classification of group von Neumann algebras

October 11th to October 20th, 2021

University of Iowa Iowa City, IA

(with Ben Hayes) On 1-bounded entropy and applications to von Neumann algebras

July 25th to August 10th, 2021

University of Virginia Charlottesville, VA

(with Ionut Chifan) Classification of group von Neumann algebras

July 5th to July 23rd, 2021

University of Iowa Iowa City, IA