

## JESSE PETERSON

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### Education

*PhD* in Mathematics at UCLA, June 2006.

Advisor: Prof. Sorin Popa.

Dissertation title: 1-cohomology and rigidity in  $\text{II}_1$  factors.

*Bachelor of Science* from Westmont College (USA), May 2001.

### Academic Employment

**Chancellor's Faculty Fellow** - Vanderbilt University

2017 to 2019.

**Associate Professor** - Vanderbilt University

2014 to current.

**Assistant Professor** - Vanderbilt University

2008 to 2014.

**NSF Postdoctoral Fellow** - UC Berkeley

2006 to 2008.

Scientific mentor: Vaughan Jones.

**Instructor** - UCLA.

Spring 2004.

**Teaching Assistant** - UCLA.

Fall 2002 to Summer 2004.

### Honors and Awards

**NSF Grant DMS-2400040**, Vanderbilt University, 2024-2027.

**NSF Conference Grant DMS-2000214**, Vanderbilt University, 2020-2021.

**NSF Grant FRG-1853989**, Vanderbilt University, 2019-2022.

**NSF Grant DMS-1801125**, Vanderbilt University, 2018-2021.

**Chancellor's Faculty Fellowship**, Vanderbilt University, 2017-2019.

**NSF Conference Grant DMS-1800204**, Vanderbilt University, 2018-2019.

**NSF Conference Grant DMS-1700457**, Vanderbilt University, 2017-2018.

**NSF Grant DMS-1500998**, Vanderbilt University, 2015-2018.

**NSF Conference Grant DMS-1500926**, Vanderbilt University, 2014-2015.

**NSF Grant DMS-1201565**, Vanderbilt University, 2012-2015.

**Alfred P. Sloan Research Fellowship**, Vanderbilt University, 2009-2013.

**NSF Grant DMS-0901510**, Vanderbilt University, 2009-2012.

**NSF Math. Sci. Postdoctoral Research Fellowship**, UC Berkeley, 2006-2008.  
**Clay Mathematics Institute Liftoff Fellowship**, UC Berkeley, Summer 2006.  
**UCLA Dissertation Year Fellowship**, UCLA, 2005-2006.  
**NSF-VIGRE Fellowship**, UCLA, 2001-2002, 2004-2005.  
**Regent's Registration Fee Grant**, UCLA, 2002-2004.  
**Outstanding first/second year student award**, Westmont College, 1998.

### Students

- Thomas Sinclair, Ph.D. in 2011, Vanderbilt University (joint advisor Dietmar Bisch).  
Currently an associate professor at Purdue University.
- Chenxu Wen, Ph.D. in 2016, Vanderbilt University.
- Sayan Das, Ph.D. in 2017, Vanderbilt University (joint advisor with Vaughan Jones).  
Currently an assistant professor at Embry-Riddle Aeronautical University.
- Krishnendu Khan, Ph.D. in 2020, Vanderbilt University (joint advisor with Alexander Olshanskiy).  
Currently a postdoc at Purdue University.
- Ishan Ishan, Ph.D. in 2022, Vanderbilt University.  
Currently a postdoc at University of Nebraska-Lincoln.
- Srivatsav Kunnawalkam Elayavalli, Ph.D. in 2022, Vanderbilt University.  
Currently a postdoc at UC San Diego.
- Dumindu DeSilva, Ph.D. in 2023, Vanderbilt University.
- Changying Ding, Ph.D. in 2023, Vanderbilt University.  
Currently a postdoc at UC Los Angeles.
- Kai Toyosawa, Ph.D. expected in 2025, Vanderbilt University.

### Publications and preprints

- C. Ding, J. Peterson: *Biexact von Neumann algebras*, arXiv:2309.10161, preprint 2023.
- P. Hiatt, J. Peterson, S. Popa: *Some classes of smooth bimodules over  $II_1$  factors and their associated 1-cohomology spaces*, arXiv:2304.06242, preprint 2023, to appear in J. Funct. Anal.
- I. Ishan, J. Peterson, L. Ruth: *Von Neumann equivalence and properly proximal groups*, Adv. Math., **438**, Article 109481 (2024).
- C. Ding, S. Kunnawalkam Elayavalli, J. Peterson: *Properly proximal von Neumann algebras*, Duke Math. J. **172**(15) (2023) 2821-2894.
- D. Drimbe, A. Ioana, J. Peterson: *Cocycle superrigidity for profinite actions of irreducible lattices*, Groups Geom. Dyn. **17** (2023), no. 1, 315-329.
- U. Bader, R. Boutonnet, C. Houdayer, J. Peterson: *Charmenability of arithmetic groups of product type*, Invent. Math. **229** (2022), no. 3, 929-985.
- S. Das, J. Peterson: *Poisson boundaries of  $II_1$  factors*, Compos. Math. **158** (2022), no. 8, 1746-1776.
- R. Boutonnet, A. Ioana, J. Peterson: *Properly proximal groups and their von Neumann algebras*, Ann. Sci. Éc. Norm. Supér. (4), **54** (2021), no. 2, 445-482.

- J. Peterson: *Character rigidity for lattices in higher-rank groups*, unpublished 2014.
- D. Creutz, J. Peterson: *Rigidity for characters on lattices and commensurators*, arXiv.org: 1311.4513, preprint 2013, to appear in the American Journal of Mathematics.
- D. Creutz, J. Peterson: *Stabilizers of ergodic actions of lattices and commensurators*, Stabilizers of ergodic actions of lattices and commensurators, Transactions of the AMS **369** (2017), no. 6, 4119-4166.
- J. Peterson, A. Thom: *Character rigidity for special linear groups*, Journal für die reine und angewandte Mathematik (Crelles Journal) **716**, 207-228 (2016).
- H. Li, J. Peterson, K. Schmidt: *Ergodicity of principle algebraic group actions*, Contemp. Math., **631**, Amer. Math. Soc., Providence, RI, 2015.
- J. Peterson: *Examples of Group actions which are virtually  $W^*$ -superrigid*, arXiv.org: 1002.1745, unpublished 2010.
- I. Chifan, J. Peterson: *Some unique group-measure space decomposition results*, Duke Mathematical Journal **162** (11), 1923-1966 (2013).
- J. Peterson, T. Sinclair: *On cocycle superrigidity for Gaussian actions*, Ergodic Theory and Dynamical Systems **32** (1), 249-272 (2012).
- J. Peterson, A. Thom: *Group cocycles and the ring of affiliated operators*, Invent. Math. **185** (3), 561-592 (2011).
- J. Peterson:  *$L^2$ -rigidity in von Neumann algebras*, Invent. math. **175**, 417-433 (2009)
- A. Ioana, J. Peterson, S. Popa: *Amalgamated Free Products of  $w$ -Rigid Factors and Calculation of their Symmetry Groups*, Acta Math. **200**, No. 1, 85-153 (2008).
- J. Peterson: *A 1-cohomology characterization of property (T) in von Neumann algebras*, Pacific Journal of Math. **243**, No. 1, 181-199 (2009)
- J. Peterson, S. Popa: *On the notion of relative property (T) for inclusions of von Neumann algebras*, J. Funct. Anal. **219**, no. 2, 469-483 (2005).

### Recent conference and seminars organized

- Co-organizer: Subfactor seminar, Vanderbilt University, 2008-current.
- Co-organizer: Workshop on Operator Algebras and Applications: Groups and Group Actions, The Fields Institute, October 2-6, 2023.
- Co-organizer: The Eighteenth Annual NCGOA Spring Institute at Vanderbilt University, May 8-11, 2023.
- Co-organizer: Von Neumann Algebras and Group Theory, University of Iowa, April 13-16, 2023.
- Co-organizer: Workshop on Von Neumann Algebras and Geometric Group Theory, UCSD, February 10-12, 2023.
- Co-organizer: Von Neumann Algebras and Group Theory, University of Iowa, October 7-9, 2021.
- Co-organizer: Classification Problems in von Neumann Algebras, BIRS, Banff, September 29 - October 4, 2019.
- Co-organizer: (Sub)factors in Maui 2018, UH Maui College - May 21-25, 2018.

### Recent conference and workshop lectures

- June 3-7, 2024 - Great Planes Operator Theory Symposium, University of Nebraska-Lincoln (**plenary lecture**).
- May 4, 2024 - Analysis Day, University of Michigan-Dearborn.
- August 21-25, 2023 - Noncommutative Harmonic Analysis and Rigidity Theory in Operator Algebras, TU Delft, Netherlands.
- June 17, 2023 - Groundwork for Operator Algebras Lecture Series, Purdue University.
- April 13-16, 2023 - Von Neumann Algebras and Group Theory, University of Iowa (**lecture series**).
- March 25-29, 2023 - Modern Trends in Operator Algebras, UCLA.
- February 10-12, 2023 - Workshop on Von Neumann Algebras and Geometric Group Theory, UCSD.
- January 4-7, 2023 - Joint Mathematics Meetings, Boston, MA, AMS Special Session: Advances in Operator Algebras.
- July 18-22, 2022 - Graduate Mini-school in Groups and Dynamics, UT Austin.
- August 9-14, 2021 - YMC\*A 2021, at Westfälische Wilhelms-Universität Münster (**lecture series**), Germany.
- January 6-9, 2021 - Joint Mathematics Meetings, Washington, D.C. AMS Special Session: Advances in Operator Algebras. (Online meeting).
- May 25-29, 2020 - The 48th Canadian Operator Symposium, at University of Toronto, Canada, (Online meeting).
- December 1 - 7, 2019 - Groups, Dynamics and Approximation, Mathematisches Forschungsinstitut Oberwolfach, Germany.
- August 11 - August 17, 2019 -  $C^*$ -algebras, Mathematisches Forschungsinstitut Oberwolfach, Germany.
- August 5-10, 2019 - Geometry and Approximation, Technische Universität Dresden, Germany.
- November 25-30, 2018 - Model theory and operator algebras, at Banff International Research Station, Canada.
- November 9, 2018 - Micro-workshop on Groups, Dynamics, and Operator Algebras, Texas A&M University.
- November 3, 2018 - Nebraska-Iowa Functional Analysis Seminar, at University of Nebraska.
- October 13-14, 2018 - East Coast Operator Algebra Symposium, at Texas Christian University.
- May 29-June 2, 2018 - Great Plains Operator Theory Symposium (**plenary speaker**), Miami University.
- May 21-25, 2018 - (Sub)factors in Maui 2018, UH Maui College.
- April 30-May 5, 2018 - Approximation properties in operator algebras and ergodic theory, at Institute of Pure and Applied Mathematics.
- April 28, 2018 - Operator algebras at UCLA: A celebration of Masamichi Takesaki, at UCLA/Institute of Pure and Applied Mathematics.
- March 24-March 25, 2018 - Brazos analysis seminar, at Baylor University.
- February 26-March 9, 2018 -  $L^2$ -invariants and their analogues in positive characteristics (**lecture series**), Instituto de Ciencias Matemáticas, Spain.