CV – Peter Patzt

PERSONAL INFORMATION

Name: Peter Patzt
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EMPLOYMENT

2020 – present	Assistant Professor, University of Oklahoma
2020 – 2021	Visiting Researcher, University of Copenhagen
	Host: Nathalie Wahl
2017 – 2020	Golomb Visiting Assistant Professor, Purdue University
	Mentor: Jeremy Miller
Summer 2017	Visiting Researcher, University of Copenhagen (3 months)
	Host: Nathalie Wahl

EDUCATION

2017	Ph.D. in Mathematics (Summa Cum Laude), Freie Universität Berlin
	Advisor: Holger Reich
	Thesis: "Representation stability for filtrations of Torelli groups"
2013	M.Sc. in Mathematics, Freie Universität Berlin
2009	B.Sc. in Mathematics, Universität Rostock

GRANTS AND AWARDS

2025	Conference at and funded by SwissMAP Research Station (CHF 30,000)
2025	Séminaire Bourbaki talk by Javier Fresán on "Uniform twisted homological stability" (j/w Jeremy Miller, Dan Petersen, and Oscar Randal-Williams) and "Hyperelliptic curves, the scanning map, and moments of families of quadratic L-functions" (by Jonas Bergström, Adrian Diaconu, Dan Petersen, Craig Westerland)
2024 – 2026	EU Marie Curie Doctoral Network "Cohomology, Geometry, Explicit Number Theory" with Philippe Vincent-Elbaz, Bill Allombert, Karim Belabas, Thomas Camus, Sander Dahmen, Mathieu Dutour, Bettina Eick, Graham Ellis, Herbet Gangl, Paul Gunnells, Alexander Hulpke, Rob de Jeu, Kevin Layat, Aurel Page, Haluk Şengün, Jennifer Wilson, Dan Yasaki (€2,825,467.20), recommended for funding
2024 – 2027	NSF Standard Grant "Patterns in the cohomology of linear groups" ($314,311)
2023	NSF Conference Grant for "Redbud Topology Conference" with Max Forester, Justin Malestein, Jing Tao ($28,455)
2021 – 2026	Simons Collaboration Grants for Mathematicians ($42,000)
2021	NSF Conference Grant for "Masterclass on High dimensional cohomology of moduli spaces" with Jeremy Miller ($24,410) - declined because travel was impossible
2019 – 2021	AIM SQuaRE with Alexander Kupers, Jeremy Miller, Rohit Nagpal, and Jennifer Wilson
2017 – 2020	AMS Simons Travel Grant ($4,000)
2016 – 2017	Dahlem Research School no teaching full Ph.D. Scholarship (€8,400)
2013 – 2016	Berlin Mathematical School no teaching full Ph.D. Scholarship (€50,400)

ACCEPTED OR PUBLISHED PAPERS

1. *Quotients of braid groups by their congruence subgroups* (j/w Wade Bloomquist and Nancy Scherich), accepted at Proc. Amer. Math. Soc. Ser. B, https://arxiv.org/abs/2209.09889

2. *On the codimension-two cohomology of* $\mathrm{SL}_n(\mathbb{Z})$ (j/w Benjamin Brück, Jeremy Miller, Robin J. Sroka, and Jennifer C.H. Wilson), Adv. Math. 451 (2024), 109795, https://arxiv.org/abs/2204.11967

3. *On the tails of FI-modules* (j/w John Wiltshire-Gordon), J. Pure Appl. Algebra (2024), no. 228, paper no. 107741, https://arxiv.org/abs/1909.09729

4. *Representation stability for diagram algebras*, J. Algebra 638 (2024), 625-669, https://arxiv.org/abs/2009.06346

5. *The homology of the partition algebras* (j/w Rachael Boyd and Richard Hepworth), Pacific Journal of Math. 327 (2023), no. 1, 1-27, https://arxiv.org/abs/2303.07979

6. *Improved homological stability for certain general linear groups* (j/w Alexander Kupers and Jeremy Miller), Proc. Lond. Math. Soc. 125 (2022), no. 3, 511-542, https://arxiv.org/abs/2106.12363

7. *The homology of the Brauer algebras* (j/w Rachael Boyd and Richard Hepworth), Sel. Math. New Ser. 27, 85 (2021), https://arxiv.org/abs/2009.11590

8. *On the generalized Bykovskii presentation of Steinberg modules* (j/w Alexander Kupers, Jeremy Miller, and Jennifer C.H. Wilson), IMRN (2022), no. 13, 10347-10401, https://arxiv.org/abs/2006.10906

9. *On the top dimensional cohomomology of congruence subgroups* (j/w Jeremy Miller and Andrew Putman), Geom. Topol. 25 (2021), No. 2, 999-1058, https://arxiv.org/abs/1909.02661

10. *Stability in the high-dimensional cohomology of congruence subgroups* (j/w Jeremy Miller and Rohit Nagpal), Compos. Math. 156(4) (2020), 822-861, https://arxiv.org/abs/1806.11131

11. *Non-integrality of some Steinberg modules* (j/w Jeremy Miller, Jennifer Wilson, and Dan Yasaki), J. Topol. 13 (2020), 441-459, https://arxiv.org/abs/1810.07683

12. *Central stability for the homology of congruence subgroups and the second homology of Torelli groups* (j/w Jeremy Miller and Jennifer Wilson), Adv. Math. 354 (2019), 106740, http://arxiv.org/abs/1704.04449

13. *Central stability homology*, Math. Z. 295 (2020), no. 3-4, 877–916, http://arxiv.org/abs/1704.04128

14. *Representation stability for filtrations of Torelli groups*, Math. Ann. 372 (2018), no. 1-2, 257–298, http://arxiv.org/abs/1608.06507

15. *Stability results for Houghton groups* (j/w Xiaolei Wu), Algebr. Geom. Topol. 16 (2016), no. 4, 2365–2377, https://arxiv.org/abs/1509.07639

PREPRINTS

1. *Representation stability, secondary stability, and polynomial functors* (j/w Jeremy Miller and Dan Petersen), https://arxiv.org/abs/1910.05574,

2. *On rank filtrations of algebraic K-theory and Steinberg modules* (j/w Jeremy Miller and Jennifer C. H. Wilson), https://arxiv.org/abs/2303.00245,

3. *A presentation of symplectic Steinberg modules and cohomology of* $\mathrm{Sp}_{2n}(\mathbb{Z})$ (j/w Benjamin Brück and Robin J. Sroka), https://arxiv.org/abs/2306.03180

4. *Uniform twisted homological stability* (j/w Jeremy Miller, Dan Petersen, and Oscar Randal-Williams), https://arxiv.org/abs/2402.00354,

5. *Hopf algebras, Steinberg modules, and the unstable cohomology of* $\mathrm{SL}_n(\mathbb{Z})$ *and* $\mathrm{SL}_n(\mathbb{Z})$ (j/w Avner Ash, Jeremy Miller), `https://arxiv.org/abs/2404.13776`

MINI COURSES

06/2022	1-week mini course on Duality and Stability (5 lectures), Institute Fourier
06/2019	2-week mini course on Representation Stability (8 lectures), MSRI

INVITED TALKS

01/2025	Hopf algebras and the cohomology of $\mathrm{GL}_n(\mathbb{Z})$, AMS Special Session on Cohomology of Arithmetic Groups, Mapping Class Groups, and Moduli Spaces, JMM, Seattle, WA
07/2024	Uniform twisted homological stability of braid groups and moments of quadratic L-functions, Braids Reunion Workshop, ICERM, Brown University
07/2024	Hopf algebras, cohomology of arithmetic groups, and scissors congruences, AIM Workshop "Scissors congruences, algebraic K-theory and Steinberg modules"
06/2024	Unstable cohomology of $\mathrm{SL}_n(\mathbb{Z})$ and Hopf algebras, Algebraic Structures in Topology, San Juan, Puerto Rico
02/2023	Steinberg module in algebraic topology, South Central Topology Conference II, Texas State University
10/2021	Rognes' connectivity conjecture and the Koszul dual of Steinberg, Cohomology of Arithmetic Groups: Duality, Stability, and Computations, BIRS workshop, Banff
10/2021	Top cohomology of congruence subgroups of $\mathrm{SL}_n(\mathbb{Z})$, Lattices and Cohomology of Arithmetic Groups: Geometric and Computational Viewpoints, BIRS workshop, Banff
08/2020	Discrete Morse Theory and E^k buildings, Mini workshop on simplicial complexes, Copenhagen University
09/2019	Top dimensional cohomology of principal congruence subgroups, AMS Sectional Meeting, Wisconsin University
05/2019	Polynomial functors and stability, Midwest Representation Stability Research Meeting, Chicago, IL
08/2018	Top dimensional cohomology of congruence subgroups, Michigan Representation Stability Week, Michigan University
12/2016	Representation stability for the general linear groups, NWDR Workshop, Bielefeld

CONTRIBUTED TALKS

06/2023	Congruence subgroups of braid groups, Workshop in Geometric Topology, Colorado College
07/2022	Cohomology of arithmetic groups, Short Communication at Geometry and Topology, ICM sectional workshop, Copenhagen, Denmark
06/2022	High cohomology of arithmetic groups, Twinned Conference on Homotopy Theory with Applications to Arithmetic and Geometry, Bonn, Germany
05/2022	Rognes' connectivity conjecture and the Koszul dual of Steinberg, Algebraic structures in topology, San Juan, Puerto Rico
03/2019	Polynomial functors and representation stability, Workshop on Functor Calculus, Ohio State University
07/2018	High dimensional cohomology of congruence subgroups, Young Topologists Meeting, Copenhagen University
06/2018	High dimensional cohomology of congruence subgroups, International Conference on Manifolds, Groups and Homotopy, Isle of Skye
07/2017	Representation stability for filtrations of Torelli groups, Young Topologists Meeting, KTH Stockholm

04/2017	Representation stability for filtrations of Torelli groups, AMS Sectional Meeting, Indiana University

SEMINAR/COLLOQUIA TALKS

05/2025	Uniform twisted homological stability of braid groups and moments of quadratic L-functions, California State University Northridge, Algebra, Number Theory, and Discrete Mathematics Seminar
12/2024	Unstable cohomology of $SL_n \mathbb{Z}$ and Hopf algebras, University of Oxford, Topology Seminar
12/2024	Unstable cohomology of $SL_n \mathbb{Z}$ and Hopf algebras, University of Warwick, Geometry and Topology Seminar
11/2024	Unstable cohomology classes of $SL_n \mathbb{Z}$ and Hopf algebras, University of Rostock, Colloquium
11/2024	Unstable cohomology of $SL_n \mathbb{Z}$ and Hopf algebras, University of Stockholm, Topology Seminar
11/2024	Uniform twisted homological stability of braid groups and moments of quadratic L-functions, University of Copenhagen, Algebra/Topology Seminar
11/2024	Unstable cohomology classes of $SL_n \mathbb{Z}$ and Hopf algebras, University of Bern, Colloquium
10/2024	Unstable cohomology of $SL_n \mathbb{Z}$ and Hopf algebras, ETH Zürich, Algebraic Geometry and Moduli Spaces Seminar
10/2024	Uniform twisted homological stability of braid groups and moments of quadratic L-functions, University of Pisa, Seminar on Combinatorics, Lie Theory, and Topology
03/2024	High dimensional cohomology of arithmetic groups, University of Michigan, Topology Seminar
10/2023	High dimensional cohomology of arithmetic groups, Texas Christian University, Colloquium
09/2023	Homology of spaces, simplicial complexes, and groups, CSU Fort Collins, Rocky Mountain Algebraic Combinatorics Seminar
09/2023	High dimensional cohomology of arithmetic groups, CSU Fort Collins, Rocky Mountain Algebraic Combinatorics Seminar
09/2023	Some applications of the Steinberg module in algebraic topology, CU Boulder, Topology Seminar
08/2022	Quotients of congruence braid groups, Cambridge University, Topology Seminar
04/2022	Representation stability for diagram algebras, Michigan University, Representation Stability Seminar
12/2021	The Steinberg module in algebraic topology, Redbud Topology Seminar
10/2021	Rognes' connectivity conjecture and the Koszul dual of Steinberg, University of Glasgow, Geometry and Topology Seminar
12/2020	High cohomology of arithmetic groups, Freie Universität Berlin, Geometry and Topology Seminar
10/2020	The homology of Brauer algebras, Copenhagen University, Algebra/Topology Seminar
01/2020	High dimensional cohomology of congruence subgroups, Auburn University, Colloquium
01/2020	High dimensional cohomology of congruence subgroups, Durham University, Topology Seminar
11/2019	High dimensional cohomology of congruence subgroups, MIT, Topology Seminar
11/2019	High dimensional cohomology of congruence subgroups, University of Oklahoma, Colloquium
10/2019	High dimensional cohomology of congruence subgroups, University of Copenhagen, Algebra/Topology Seminar

09/2019	High dimensional cohomology of congruence subgroups, Princeton, Topology Seminar
09/2019	On Tails of FI-modules, CUNY, Topology Seminar
05/2019	High dimensional cohomology of congruence subgroups, UC Irvine, Algebra Seminar
01/2019	High dimensional cohomology of congruence subgroups, Michigan University, Topology Seminar
11/2018	High dimensional cohomology of congruence subgroups, Notre Dame University, Topology Seminar
01/2018	Representation stability for filtrations of Torelli groups, Aberdeen University, Topology Seminar
01/2018	Central stability homology, Strasbourg University, Topology Seminar
11/2017	Representation stability for filtrations of Torelli groups, Indiana University – Purdue University – IUPUI Joint Topology Seminar
10/2017	Representation stability for filtrations of Torelli groups, Stanford University, Topology Seminar
10/2017	Representation stability for filtrations of Torelli groups, The University of Chicago, Topology – Topology and Geometry Joint Seminar
06/2017	Representation stability for filtrations of Torelli groups, Bern - Neuchâtel - Fribourg/Freiburg, InterCity Seminar
04/2017	Representation stability for filtrations of Torelli groups, Technical University Dresden, Geometry Seminar
10/2016	Central stability homology and applications, University of Copenhagen, Topology Seminar
12/2014	Notions of representation stability, NTNU Trondheim, Algebra Seminar

CONFERENCES ORGANIZED

06/2025	Polylogarithms, homology of linear groups, and Steinberg modules, SwissMAP Research Station in Les Diablerets, Switzerland
07/2023	Stability in Topology, Arithmetic, and Representation Theory 2023, Purdue University
04/2023	Redbud Conference, Norman, OK
03/2022	Special Session on "Stability in Topology, Arithmetic, and Representation Theory" at the AMS Sectional Meeting at Purdue University
06/2021	Masterclass: High dimensional cohomology of moduli spaces, Copenhagen, DK
04/2020	Special Session on "Stability in Topology, Arithmetic, and Representation Theory" at the AMS Sectional Meeting at Purdue University (Physical meeting was canceled and moved online)
04/2019	Midwest Representation Stability Research Meeting, Chicago, IL

MENTORING

2022 – present	PhD advisor for Tatiana Abdelnaim
2020 – 2021	Bachelor thesis on the Voronoi complex
07/2019	Comentoring of a student through the Purdue Bridge Graduate program for incoming underrepresented graduate students

TEACHING

University of Oklahoma (Instructor)

Fall 2024:	MATH 2934 Differential and Integral Calculus III
	MATH 5900 Graduate reading course: Algebraic K-Theory
Spring 2024:	MATH 2924 Differential and Integral Calculus II
	MATH 6833 Topics in Topology: Topological K-Theory (5 weeks)
	MATH 5900 Graduate reading course: Algebraic K-Theory

Fall 2023:	MATH 3333 Linear Algebra
	MATH 5900 Graduate reading course: Highly connected simplicial complexes
Spring 2023:	MATH 6323 Algebraic Topology II
	MATH 5900 Graduate reading course: Cohomology of congruence subgroups
	MATH 6393 Topics in Algebra: Representation stability (5 weeks)
Fall 2022:	MATH 6318 Algebraic Topology I
	MATH 5900 Graduate reading course: Spectral sequences
Spring 2022:	MATH 2443 Multivariable Calculus
	MATH 6833 Topics in Topology: Group Cohomology (5 weeks)

Copenhagen University

Spring 2021:	Algebraic Topology II (Homotopy theory and spectral sequences) (Lecturer)
Fall 2020:	Categories and Topology (Introduction to homotopy categories via simplicial sets) (TA)

Purdue University (Instructor)

Spring 2020:	MA 351 Linear Algebra for Science Majors
	MA 598 Graduate reading course: Hecke action on the cohomology of congruence subgroups
Fall 2019:	MA 351 Linear Algebra for Science Majors
	MA 598 Graduate reading course: Introduction to Steinberg modules
Spring 2019:	MA 265 Linear Algebra for Engineering Majors
Fall 2018:	MA 351 Linear Algebra for Science Majors
Spring 2018:	MA 265 Linear Algebra for Engineering Majors
Fall 2017:	MA 265 Linear Algebra for Engineering Majors

Technische Universität Berlin (Teaching Assistant)

Summer 2012:	Analysis 1
Winter 11/12:	Linear Algebra 1

Universität Rostock (Teaching Assistant)

Winter 09/10:	Linear Algebra 1
Summer 2009:	Analysis 2
Winter 08/09:	Mathematics for Economy Majors

SEMINARS ORGANIZED

2022 – 2023	Organizing the Geometry and Topology Seminar at OU
2018 – 2020	Organizing the Purdue Topology Seminar
2014 – 2017	Coorganizing of several seminars at FU Berlin

ATTENDED CONFERENCES

04/2024	Redbud Topology Conference, Oklahoma State University
06/2023	Summer school on Scissors Congruence, Algebraic K-Theory, and Trace Methods, Indiana University
05/2018	Topology Fest, Cornell University
04/2018	Graduate Student Topology and Geometry Conference, UIC
01/2018	Workshop: Topology of Arrangements and Representation Stability, Oberwolfach
12/2017	Bavarian Topology Conference, Augsburg University
10/2017	No Boundaries: Benson Farb's 50th Birthday Conference, University of Chicago
05/2017	Masterclass: Cohomology of arithmetic groups, Copenhagen University
07/2016	European Congress of Mathematics, TU Berlin
07/2016	Young Topologists Meeting, University of Copenhagen
07/2016	AIM-Workshop on Representation Stability, San Jose
11/2015	Workshop: Automorphisms of free groups, University of Copenhagen

11/2015	Conference: Topology and Geometry, Hausdorff Institute Bonn
08/2015	Symposium of Geometry and Topology, UBC Vancouver
03/2015	Representation theory Schwerpunkttagung, Bad Honnef
09/2014	DMV-PTM joined meeting, Poznan
09/2014	Satellite conference: Groups and Topology, Bedlewo
09/2014	Workshop: Diagram Algebras, University of Stuttgart
08/2014	LMS-CMI Research School: Algebraic Lie Theory, University of Glasgow
07/2014	Young Topologists Meeting, University of Copenhagen
06/2014	Young Algebraists' Conference, EPF Lausanne

Last updated: October 14, 2024