

CURRICULUM VITAE
Jennifer Paulhus

Current Address

Dept. of Mathematics and Statistics
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Research Interests

algebraic number theory, arithmetic geometry, elliptic and hyperelliptic curves, Jacobian varieties, representation theory, automorphism groups of Riemann surfaces

Academic Degrees

Ph.D. in Mathematics

University of Illinois at Urbana-Champaign (UIUC), May 2007

Advisor: Iwan Duursma

B.A. in Mathematics with honors, Computer Science concentration, magna cum laude

College of the Holy Cross, May 1999

Employment

Associate Professor Grinnell College, May 2017-present
Fulbright Scholar Universidad de la Frontera, Temuco, Chile, March - June 2022
Assistant Professor Grinnell College, August 2011-May 2017
Assistant Professor Villanova University, August 2010-May 2011
Assistant Professor-Term(postdoc), Kansas State University, August 2007-August 2010

Other Employment

Americorps Member, Americorps/CHART Program in Champaign-Urbana, Illinois,
August 2000-July 2001

Refereed Research Publications¹

- J. Paulhus. A database of group actions on Riemann surfaces, to appear in *Springer Proceedings in Mathematics and Statistics*
Description of the mathematics underpinning the data on group actions of Riemann surfaces available at: <http://www.lmfdb.org/HigherGenus/C/Aut/>
Computer code: <http://www.github.com/vjenpaulhus/group-actions-RS>
- T. Chow and J. Paulhus. Algorithmically distinguishing irreducible characters of the Symmetric Group. *The Electronic Journal of Combinatorics*. 28 (2), 2021. online.
- M. Carvacho, J. Paulhus, T. Tucker, and A. Wootton. Non-abelian simple groups act with almost all signatures. *Journal of Pure and Applied Algebra*. 225 (4), 2021, no. 4.
- S.A. Broughton, C. Camacho, J. Paulhus, R. Winarski, and A. Wootton. Using strong branching to find automorphism groups of n -gonal surfaces. *Albanian Journal of Mathematics, Special issue in honor of Kay Magaard*. 12 (1): 89-129, 2018.
- J. Paulhus and A. Rojas. Completely decomposable Jacobian varieties in new genera. *Experimental Mathematics*. 26 (4): 430-445, 2017.

¹ Copies of most papers and preprints are available at <http://paulhus.math.grinnell.edu/research.html>.

Refereed Research Publications, continued

- A. Fischer, M. Liu, and J. Paulhus. Jacobian Varieties of Hurwitz Curves with Automorphism Group $\mathrm{PSL}(2, q)$. *Involve, a Journal of Mathematics*. 9-4: 639-655, 2016.
(Research with Grinnell undergraduates through a Mentored Advanced Project.)
- J. Paulhus. Elliptic factors in Jacobians of hyperelliptic curves with certain automorphisms. *ANTS X: Proceedings of the Tenth Algorithmic Number Theory Symposium*. Mathematical Sciences Publishers. Everett Howe and Kiran Kedlaya (Eds.), 2013.
(Errata available at <http://paulhus.math.grinnell.edu/errata.pdf>.)
- J. Bourgain, T. Cochrane, J. Paulhus, and C. Pinner. On the parity of k -th powers mod p : A generalization of a problem of Lehmer. *Acta Arithmetica*. 147 (2): 173-203, 2011.
- L. Berger, J.-L. Hoelscher, Y. Lee, J. Paulhus and R. Scheidler. The ℓ -rank structure of a global function field. *Women in Numbers: Research Directions in Number Theory*. Fields Institute Communications (60): 145-166, 2011.
- J. Bourgain, T. Cochrane, J. Paulhus, and C. Pinner. Decimations of l -sequences and permutations of even residues mod p . *Society of Industrial and Applied Mathematics Journal on Discrete Mathematics*. 232 (2): 842-857, 2009.
- J. Paulhus. Decomposing Jacobians of curves with extra automorphisms. *Acta Arithmetica*. 132 (3): 231-244, 2008.

Refereed Expository Papers

- S.A. Broughton, J. Paulhus, and A. Wootton. Future directions in automorphisms of surfaces, graphs, and other related topics. *Automorphisms of Riemann surfaces, subgroups of mapping class groups and related topics, Contemporary Mathematics*, 776, American Mathematical Society (AMS) 37-67, 2022.
- J. Paulhus. Group actions and Riemann surfaces. To appear in *Research Connections: A celebration of work by affiliates of Carleton College's Summer Mathematics Program*, Mathematical Association of America (MAA).

Other Publications

- J. Paulhus. Branching data for curves up to genus 48. arXiv:1512.07657 [math.AG] at <http://arxiv.org/abs/1512.07657>, 2015.
Descriptions of computations of monodromy using work of Thomas Breuer.
Data: <http://paulhus.math.grinnell.edu/monodromy.html>
Computer code: <https://github.com/jenpaulhus/breuer-modified>
- A. Bennett, R. Manspeaker, R. Natarajan, and J. Paulhus. Studio College Algebra at Kansas State University. *Moving Forward: Innovations in Introductory Collegiate Mathematics*. W.E. Haver and S.L. Ganter (Eds.), Washington, DC: MAA. 99-105, 2011.
- J. Paulhus. *Elliptic factors in Jacobians of low genus curves*. Ph.D. dissertation, University of Illinois at Urbana-Champaign, 2007.
- C. Girod, M. Lepinski, J. Mileti, and J. Paulhus. Cwatsset isomorphism and its consequences. *Rose-Hulman Mathematical Sciences Technical Report Series*, vol. 1, 2000.

Invited Talks

- Joint Mathematics Meeting, Boston, January 2023
AMS Special Session on Arithmetic Geometry Informed by Computation
- Universidad de la Frontera (Temuco, Chile) Colloquium, May, 2022
- AMS Spring Eastern (Virtual) Sectional Meeting, March 2022
Special Session on Automorphisms of Riemann Surfaces, Subgroups of Mapping Class Groups and Related Topics
- Joint AMS/MAA Meeting, online, January 2021
AMS Special Session on Algebraic and Arithmetic Geometry

Universidad de la Frontera (Temuco, Chile) Colloquium, online, August 2020
 Joint AMS/MAA Meeting, Denver, January 2020
 AMS Special Session on Rational Points on Algebraic Varieties: Theory and Computation
 AMS Fall Central Sectional Meeting, September 2019
 Special Session on Geometry and Topology in Arithmetic
 Arithmetic of Low-Dimensional Abelian Varieties, June 2019
 The Institute for Computational and Experimental Research in Mathematics (ICERM)
 Canadian Mathematical Society Winter Meeting, December 2018
 Special Session on Explicit Methods in Arithmetic Geometry
 AMS Spring Western Sectional Meeting, April 2018
 Special Session on Automorphisms of Riemann Surfaces and Related Topics
 Iberoamerican Congress on Geometry, January 2018
 Special Session on Abelian Varieties
 Joint AMS/MAA Meeting, San Diego, January 2018
 AMS Special Session on A Showcase of Number Theory in the Liberal Arts
 Geometry at the Frontier II: Research Workshop, Pucón, Chile, November 2017
 Universidad de Talca Mathematics Department Colloquium, October 2015
 AMS Fall Central Sectional Meeting, September 2014
 Special Session on Number Theory
 Applications of Computer Algebra, July 2014
 Special Session on Group Actions in Algebra and Geometry
 AMS Spring Central Sectional Meeting, Iowa State University, April 2013
 Special Session on Computational Advances on Special Functions and Tropical Geometry
 Universidad de Chile Mathematics Department Colloquium, March 2013
 Illinois Wesleyan Science Division Colloquium, November 2012
 University of California at Berkeley Number Theory Seminar, October 2012
 ANTS X: Tenth Algorithmic Number Theory Symposium, July 2012
 Joint AMS/MAA Meeting, Boston, January 2012
 AMS Special Session on Arithmetic Geometry
 Pacific Northwest Number Theory Conference, May 2011
 Center for Communication Research-Princeton Colloquium, March 2011
 Bryn Mawr College Colloquium, November 2010
 Temple University Number Theory Seminar, November 2010 and February 2011
 Joint AMS/MAA Meeting, San Francisco, January 2010
 MAA-AMS-MER Invited Paper Session on Mathematics and Education Reform
 AMS Fall Eastern Section Meeting, Penn State University, October 2009
 Special Session on Automorphisms of Riemann Surfaces and Related Topics
 Iowa State University Colloquium, October 2009
 University of Calgary Number Theory Seminar, July 2009
 Joint AMS/MAA Meeting, Washington, D.C., January 2009
 AMS Special Session on Group Actions on Curves
 University of Georgia Number Theory Seminar, December 2008
 Dartmouth College Colloquium, May 2008
 University of Nebraska at Lincoln Colloquium, April 2008
 Joint AMS/MAA Meeting, San Diego, January 2008
 AMS Special Session on Low Genus Curves and Applications
 Number Theory Seminar, Colorado State University, October 2007
 Joint AMS/MAA Meeting, New Orleans, January 2007
 AMS Special Session on Arithmetic of Function Fields

Other Conference Talks

Canadian Number Theory Association Meetings, July 2006, July 2008, and June 2016
 International Congress of Mathematicians, Seoul, South Korea, August 2014
 Western Number Theory Conference, December 2008 and 2010

Grants, Honors, and Awards

Frank and Roberta Furbush Scholar in Mathematics, 2017-2018 and 2022-2023

Grinnell College endowed honorary fund to support mid-career faculty scholarship

National Science Foundation and National Security Agency conference grants, 2018

Co-PI on two grants totaling \$25,000 to support travel for students and recent graduate to attend the 13th Algorithmic Number Theory Symposium at the University of Wisconsin, Madison in July 2018.

Harris Faculty Fellowship, 2015-2016

Year long, competitive junior faculty research leave through Grinnell College.

Heath Visiting Professor, Spring 2015

Brought an international scholar, Dr. Anita Rojas, to Grinnell College for a semester.

American Mathematical Society travel grant, August 2014

Travel to the International Congress of Mathematicians.

UIUC Mathematics Department Mathematics Instructional Award, Spring 2004

Select Grinnell College Service

Department Chair: July 2022-present

Committee Member: Admissions and Financial Aid Committee, Web Governance Committee, Personnel Appeals Board

Search Committee Member: Director of Corporate, Foundation and Government Relations, Vice President of Academic Affairs and Dean of the College, Writing Center

Organizer: Early Career Faculty Group

Professional Service

Co-organizer: First LMFDB, Computation, and Number Theory Conference

The Institute for Computational and Experimental Research in Mathematics (ICERM)
June 2023

Managing Editor: L-functions and Modular Forms Database, <http://www.lmfdb.org>

January 2023-present

Committee Member: Member at Large on the AMS Committee on Meetings and Conferences

February 2023-January 2026

*Editor: Automorphisms of Riemann surfaces, subgroups of mapping class groups and related topics. *Contemporary Mathematics* volume 776, 2022.*

Associate Editor: L-functions and Modular Forms Database, <http://www.lmfdb.org>

August 2018-December 2022

Steering Committee Member: Algorithmic Number Theory Symposium (ANTS), biennial international conference

Program Committee Member: ANTS XIV, International conference held at the University of Auckland, New Zealand, Summer 2020

Co-organizer: AMS Special Session on Automorphisms of Riemann Surfaces, Subgroups of Mapping Class Groups and Related Topics, AMS Spring Sectional Meetings, March 2020 (postponed until March 2022)

Co-organizer: ANTS XIII, International conference held at the University of Wisconsin, Madison, July 2018

Paper Referee: ANTS XI and XIV, Bulletin of the Korean Mathematical Society, International Journal of Number Theory, Mathematical Journal of Madrid Academy of Sciences, Quarterly Journal of Mathematics, and Transactions of the AMS

Ph.D. Defense Committee Member:

Robert Auffarth, Pontificia Universidad Católica de Chile, January 2014

Estefanía Bravo, Universidad de Chile, March 2022

Co-organizer: AMS Special Session on Arithmetic Geometry, AMS/MAA Meetings, January 2010 and 2012

Reviewer: AMS Mathematical Reviews, 2008-2012

Teaching (+ indicates graduate course)

Grinnell College

Tutorial-Almost Heaven: West Virginia
Calculus I
Calculus II
Linear Algebra
Combinatorics
Elementary Number Theory

Demystifying Mathematics
Foundations of Abstract Algebra
Algebraic Number Theory
Field Theory
Elliptic Curves
Riemann Surfaces

Villanova University

Calculus I
Modern Algebra I

Number Theory+

Kansas State University: Postdoc

Introduction to the Theory of Groups+
Topics in Number Theory: Elliptic Curves+
Discrete Mathematics

Introduction to Contemporary Math
Math for Elementary School Teachers
College Algebra

UIUC: Graduate Teaching Assistant (as primary instructor)

Calculus for Business, large lecture and small class
A Mathematical World

College Algebra
Introductory Matrix Theory

Workshops and Courses

Workshop on Arithmetic Geometry, Number Theory, and Computation, ICERM, June 2020
Project co-lead for "Groups in the LMFDB"

Connections in the LMFDB, Institute of Advanced Study, March 2019

Geometry at the Frontier II: School, Pucón, Chile, November 2017
Gave a course on "Elliptic curves and an introduction to abelian varieties".

Symmetries of Surfaces, Maps and Dessins, Banff International Research Station, Fall 2017

L-Functions and Modular Forms Database, University of Bristol, March 2016

SMPosium, Carleton College, July 2011

Women in Numbers, Banff International Research Station, November 2008

Rational Points on Curves, Banff International Research Station, February 2007

Arizona Winter School, March 2006

Membership

American Mathematical Society, Phi Beta Kappa

Computer Proficiencies

Magma, GAP, Maple, Sage, Python, PostgreSQL