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

Professor	Grinnell College May 2023 - present
Fulbright Scholar	Universidad de la Frontera, Temuco, Chile, March - June 2022
Associate Professor	Grinnell College, May 2017 - May 2023
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 Publications[1]
R. Hidalgo, J. Paulhus, S. Reyes-Carocca, and A. Rojas. On non-normal subvarieties of the moduli space of Riemann surfaces. Submitted.
J. Paulhus. A database of group actions on Riemann surfaces. *Birational Geometry, Kähler-Einstein Metrics and Degenerations*. Springer Proceedings in Mathematics and Statistics, 409: 693-708, 2023.
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/jenpaulhus/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.

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[1] Copies of most papers and preprints are available at http://jenpaulhus.com/research/.

Refereed Research Publications, continued

J. Paulhus and A. Rojas. Completely decomposable Jacobian varieties in new genera. *Experimental Mathematics*. 26 (4): 430-445, 2017.

A. Fischer, M. Liu, and J. Paulhus. Jacobian Varieties of Hurwitz Curves with Automorphism Group 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://jenpaulhus.com/research/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 and Short Articles

J. Paulhus. Group actions and Riemann surfaces. To appear.

J. Paulhus. Maintaining a research career at a primarily undergraduate institutions. *Notices of the American Mathematical Society (AMS)*. vol. 70, no. 4. April 2023.

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 Math,* 776, AMS, 37–67, 2022.

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://jenpaulhus.com/research/mondromy.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. Cwatset 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

Invited Talks, continued[2]

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

Other Conference Talks

Canadian Number Theory Association Meetings, June 2016
International Congress of Mathematicians, Seoul, South Korea, August 2014

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

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[2] Older invited talks and other conference talks are at http://jenpaulhus.com/previoustalks.html.

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:
Estefanía Bravo, Universidad de Chile, March 2022
Robert Auffarth, Pontifica Universidad Católica de Chile, January 2014
Co-organizer: AMS Special Session on Arithmetic Geometry, AMS/MAA Meetings, January 2010 and 2012
Reviewer: AMS Mathematical Reviews, 2008-2012

Teaching[3] (+ 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

[3] Materials for many classes are available at http://jenpaulhus.com/teaching/

Teaching continued (+ indicates graduate course)

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