

University of Washington
Department of Mathematics
US Citizen

Padelford Hall, Pend Oreille Road NE,
Seattle, WA 98105
<https://math.washington.edu/people/paige-helms>

Education **University of Washington**

Advisor: Dr. Jayadev Athreya
PhD in Mathematics 2025 (exp.)

University of California, Riverside

B.S. Pure Mathematics 2019, Magna Cum Laude

MiraCosta College

A.S. Mathematics for Transfer. 2015

Pre-Prints **An Extremal Property of the Square Lattice**

arxiv:2122.01929

Hyperbolic Staircases: Periodic Paths on $2n + 1$ -gons, co-authored

with *M.R. Connor, D. Davis, M. Kielstra, S. Lelièvre, Z. Steinberg, C. Sun*
arXiv:2111.13971

Talks

Counting Reciprocal Geodesics on Teichmüller Curves

Candidacy Exam; University of Washington Apr. 25 2024

Extremal Properties of some Unimodular Lattices

Invited; UVM Number Theory Seminar Feb. 23 2023

Cylinder Decompositions and Affine Invariant Manifolds

Mini Course; UW Dynamics Seminar Nov. 2022

Moduli Space of Translation Surfaces

Mini Course; Institut Henri Poincaré May 20 2022

Lattices and Lenses

Mathematics and Computer Science Colloquium; Moravian University Nov. 4 2021

What Is an Origami?

Math Club; University of California, Riverside. February 22, 2019

The Action of $SL_2(\mathbb{Z})$ on Origamis

Nebraska Conference for Undergraduate Women in Mathematics;
University of Nebraska, Lincoln. January 27, 2019

The Action of $SL_2(\mathbb{Z})$ on Origamis

MAA SoCal-Nevada Fall Section Meeting; Scripps College. October, 2018

Action of $SL_2(\mathbb{Z})$ on Some Surfaces

NAM's 28th Undergraduate MATHFest; Spelman College. September, 2018

The Shape and Symmetry of Posets

UC Riverside Math Department; UC Riverside. May 30, 2018

- Organizing **USTARS Organizing Committee**
Annual Conference, 2020-pres.
AMS Special Session, JMM 2020
The Mathematics of Social Justice
Colorado Convention Center, Jan. 15-18
AMS Special Session, Fall Section Meeting
Geometry and Dynamics
University of California, Riverside; Nov. 9-10
Math Connections 2019
Geometry, Representation Theory, and Category Theory
University of California, Riverside; May 2019
- Awards **ARCS Foundation Scholar**, University of Washington 2019-2021
Provost's Scholarship, University of Washington 2019
Bosch Prize, University of California, Riverside 2019
E.E. and R.C. Ketchersid Scholarship, UC Riverside 2018
- Teaching **Girls Rock Math**
Perkins School, Main Instructor Jun. - Aug. 2024
Class size: 20
Experimental Math Lab (XML) in Cryptography
Park City Mathematics Institute, XLM Primary Instructor Jul.-Aug. 2022
Class size: 40
Linear Algebra
UW Math 340A, Teaching Assistant Jan. - Mar. 2023
Class size: 35
Art And Mathematics As Embodied Practices
UW Math 150/Art 255, Teaching Assistant Sep. - Dec. 2022
Class size: 43
Galois Theory
UW Math 404, Teaching Assistant Mar. - Jun. 2021
Class size: 20
Group Theory
UW Math 403, Teaching Assistant Jan. - Mar. 2021
Class size: 25
Ring Theory
UW Math 402, Teaching Assistant Sep. - Dec. 2020, 2021
Class size: 30
Calculus with Analytic Geometry
UW Math 124, Recitation Sessions, Sept. - Jun. 2020
Class size: 8
Tutoring and Academic Support Center
CRLA Level II Certified Tutor, MiraCosta College, Fall 2014- Spring 2015
Subjects: Lower Division Mathematics, Biology

Mentorship

Billiards and Polygonal Surfaces

Summer@ICERM 2021, Project Mentor

June - Aug. 2021

Girls Get Math

ICERM, Mentor 2021

Washington Directed Reading Program Mentor

Winter 2020 "Exploring *Office Hours with a Geometric Group Theorist*"

Fall 2021 *Groups! and Graphs!*, mentee: Qichen Xu

Winter 2021 "Let's Talk about Grad School", mentees: Titus Kariuki,

Kheng Rowen Lapastora, Carey Zhou, and Kylee Hoffman

Fall 2024: Geometry and Surfaces, mentee: Alexandre Borentain

Washington eXperimental Math Lab (XML)

Mentor with Dr. Heather Lee, Winter 2022

Exploring Equity in Mathematics Seminar

UC Riverside, Co-organizer and discussion leader. Spring 2019

Spring Reading Course

UC Riverside, Project Mentor. Spring, 2019

Community Work

Graduate Student Representative

University of Washington 2022-23

Grad Student Lightning Talks

Organizer, PCMI 2022, UC Riverside 2024

Experienced Student Panel

University of Washington 2020, 2021, 2024

Girls Who Fell in Love with Math

Panelist, in conversation with Alice Chang 2021

Graduate School Panelist

BAMM! Graduate Student Panel

UC Riverside AWM Chapter 2020

Cal State San Bernardino REU 2020

Cal Poly Pomona Kappa Mu Epsilon Student Chapter 2020

UW Math Club 2021

Mathematics Workshop for Excellence and Diversity

Invited Panelist, UC Riverside 2019

Workshops,
Conferences
Attended

- BIG Ideas in Dynamics**
UIC, 2024
- Nonlinear Days: Dynamics of Group Actions, Random Walks on Groups**
Fields Institute, 2024
- Number Theory Informed by Computation**
PCMI Graduate Summer School, 2022
- Groups acting on fractals, hyperbolicity, and self-similarity**
Institut Henri Poincaré, Paris
April 11 - July 8, 2022
- Groups Acting on Fractals**
CIRM, April 2022
- Geometric Group Theory w/ ∂ , Virtual**
July 20-31, 2020
- Topology Student Workshop, Virtual - Hosted by Georgia Tech**
July 6-10, 2020
- Illustrating Dynamics and Probability, ICERM**
November 11-15, 2019
- PCMI Undergraduate Summer School IAS, Park City**
June 30 - July 20, 2019
- Princeton Summer School in Geometric Analysis, Princeton University**
June 10 - June 28, 2019
- Summer@ICERM 2018: Low Dimensional Topology & Geometry**
June 11 - August 3, 2018

References

<p>Dr. Paul Apisa Mathematics Department University of Wisconsin, Madison paul.apisa@gmail.com</p>	<p>Dr. Max Lieblich Mathematics Department University of Washington lieblich@uw.edu</p>
<p>Dr. Jayadev Athreya Mathematics Department University of Washington jathreya@uw.edu</p>	<p>Dr. Matthew Durham Mathematics Department University of California, Riverside mdurham@ucr.edu</p>