

PETER KAGEY

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WORK

California State Polytechnic University, Pomona Assistant Professor of Mathematics	<i>August 2024–present</i>
Harvey Mudd College Visiting Assistant Professor of Mathematics	<i>July 2022–June 2024</i>
University of Southern California Assistant Lecturer and Teaching Assistant	<i>August 2017–July 2022</i>
Dexcom Software engineer	<i>December 2014–August 2017</i>

EDUCATION

University of Southern California Ph.D. in Mathematics under Sami Assaf Dissertation Title: <i>Permutations, Statistics, and Switches</i>	<i>August 2017–July 2022</i>
University of Southern California M.A. in Mathematics	<i>August 2017–May 2020</i>
Oregon State University B.S. in Mathematics	<i>September 2011–June 2014</i>

TEACHING

MAT 4200: Differential Geometry	<i>Scheduled, Spring 2026, CPP</i>
MAT 4170: Introduction to Abstract Algebra I	<i>Scheduled, Spring 2026, CPP</i>
MAT 4111A: Putnam Preparation	<i>Fall 2025, CPP</i>
MAT 3100: Introduction to Mathematical Proof	<i>Fall 2025, CPP</i>
MAT 4180: Introduction to Abstract Algebra II	<i>Spring 2025, CPP</i>
MAT 4170: Introduction to Abstract Algebra I	<i>Fall 2024, CPP</i>
MATH 106: Combinatorics	<i>Spring 2024, HMC</i>
MATH 189AH: Making Mathematics	<i>Spring 2024, HMC</i>
MATH 197: Senior Thesis in Mathematics	<i>Spring 2024, HMC</i>
MATH 198: Math Forum	<i>Spring 2024, HMC</i>
MATH 019: Single and Multivariable Calculus	<i>Fall 2023, HMC</i>
MATH 196: Independent Study (Information and Complexity Theory)	<i>Fall 2023, HMC</i>
MATH 197: Senior Thesis in Mathematics	<i>Fall 2023, HMC</i>
MATH 198: Math Forum	<i>Fall 2023, HMC</i>
MATH 062: Probability and Statistics	<i>Spring 2023, HMC</i>
MATH 197: Senior Thesis in Mathematics	<i>Spring 2023, HMC</i>
MATH 198: Math Forum	<i>Spring 2023, HMC</i>
MATH 019: Single and Multivariable Calculus	<i>Fall 2022, HMC</i>
MATH 197: Senior Thesis in Mathematics	<i>Fall 2022, HMC</i>
MATH 198: Math Forum	<i>Fall 2022, HMC</i>
MATH 408: Mathematical Statistics	<i>Spring 2022, USC</i>
MATH 407: Probability Theory	<i>Fall 2021, USC</i>
MATH 432: Applied Combinatorics	<i>Spring 2021, USC</i>

MATH 226: Calculus III	<i>Fall 2020, USC</i>
MATH 040: Basic Mathematical Skills (Instructor of Record)	<i>Spring 2020, USC</i>
MATH 225: Linear Algebra and Linear Differential Equations	<i>Fall 2019, USC</i>
MATH 229: Calculus III for Engineers and Scientists	<i>Fall 2018, USC</i>
MATH 126: Calculus II	<i>Spring 2018, USC</i>

RESEARCH

- P. Kagey and W. Keehn, **Counting tilings of the $n \times m$ grid, cylinder, and torus**
Journal of Integer Sequences, Volume 27, 2024.
- P. Kagey, **Ranking and Unranking Restricted Permutations**
Discrete Applied Mathematics, Volume 355, 2024.
- P. Kagey, **Spinning Switches on a Wreath Product**
Journal of Combinatorial Theory, Series A, Volume 200, 2023.
- J. Bown, P. Kagey, A. Kappler, M. Orrison, J. Thadani, **Preference-restricted parking functions**
Submitted, preprint arXiv:2507.11701.
- P. Kagey and K. Rajesh, **On a Conjecture about Ron Graham's Sequence**
Submitted, preprint arXiv:2410.04728.
- P. Kagey, **A Proof Without Words: Triangles in a Triangular Grid**
Submitted, preprint arXiv:2211.00186.
- P. Kagey, **Permutations with a given number of k -cycles**
Submitted, preprint arXiv:2112.05281.

COMMUNITY

- Prison Mathematics Project** *October 2022–present*
Mentor
- On-Line Encyclopedia of Integer Sequences** *May 2019–present*
Associate Editor with over 800 contributions
- National Math Camps** *June 2025*
Faculty for a nine-class series on higher-dimensional geometry
- Claremont Colleges Women's Association for Computing Machinery** *November 2023*
Invited to lead a workshop in HMC's Makerspace
- Gateway to Exploring Mathematical Sciences** *November 2023*
Designed and led workshop for eighth, ninth and tenth grade students
- USC's Directed Reading for Undergraduates Program** *Spring 2022*
Graduate student mentor
- Bridge to Enter Advanced Mathematics** *May 2020–December 2022*
Volunteer Tutor
- USC Mathematics Graduate Student Association** *August 2018–June 2021*
President
- USC Graduate Student Colloquium** *Fall 2021*
Co-organizer
- USC Graduate Geometry Seminar** *Spring 2020*
Co-organizer
- USC Graduate Algebra Seminar** *Fall 2019*
Co-organizer
- Venice Math Circle** *Fall 2018*
Volunteer

TALKS

ICERM	<i>August 2025</i>
<i>Illustrating Mathematics: Reunion/Expansion</i>	
Enumerating Truchet tiles on the faces of polyhedra	
National Math Camps	<i>June 2025</i>
<i>Camp Conway</i>	
Conway's Game of Life	
Joint Mathematics Meetings	<i>January 2025</i>
<i>AMS Special Session: Using 3D-Printed [...] Objects in the Mathematics Classroom</i>	
Embodied Mathematics: Reflections on Teaching "Making Mathematics"	
Cal Poly Pomona Math and Stats Math and Stats Colloquium	<i>October 2024</i>
Counting Lyndon words with a given prefix	
MAA SoCal/Nevada Fall 2024 Section Meeting	<i>October 2024</i>
On Ron Graham's Sequence and a Longstanding Conjecture	
MathFest	<i>August 2024</i>
<i>MAA Invited Paper Session on Mathematics and Art</i>	
Enumerating Truchet Tilings and Afghan Squares	
Algebra/Number Theory/Combinatorics Seminar of the Claremont Colleges	<i>April 2024</i>
Building TOWARD Geometry: Truncated Octahedra Work As Rhombic Dodecahedra	
Guest lecture at the University of Pennsylvania	<i>March 2024</i>
The Art and Mathematics of Story-centered Research	
Gathering 4 Gardner	<i>February 2024</i>
Spinning Switches on a Wreath Product	
Whittier College (Invited)	<i>February 2024</i>
Recreational Math and Combinatorial Algorithms	
Cal Poly Pomona Math and Stats Colloquium (Invited)	<i>February 2024</i>
Mathematical Art and Recreation	
Claremont Colleges Mathematical Sciences Colloquium (Invited)	<i>January 2024</i>
Math as Art and Recreation	
Joint Mathematics Meeting	<i>January 2024</i>
<i>AMS Special Session: Using 3D-Printed [...] Objects in the Mathematics Classroom</i>	
Illustrating Multivariable Calculus Concepts In The Makerspace	
Joint Mathematics Meeting	<i>January 2024</i>
<i>AMS Contributed Paper Session on Combinatorics</i>	
Counting Arbitrary Tilings of the $n \times m$ Square Grid, Cylinder, and Torus	
USC Probability/Statistics Seminar (Invited)	<i>November 2023</i>
Permutations with a given number of k -cycles	
Southern California Discrete Math Conference	<i>November 2023</i>
Ranking and Unranking Restricted Words	
Guest lecture at Cal State LA	<i>October 2023</i>
Math is for People: A Conversation About Math Anxiety	
MAA SoCal/Nevada meeting	<i>October 2023</i>
Counting arbitrary tilings of the $n \times m$ grid under topological identifications	
Rutgers Virtual Seminar for Open Problems	<i>November 2022</i>
A Collection of Open Problems	
Cal Poly Pomona Math and Stats Colloquium	<i>October 2022</i>

Spinning switches on a wreath product	
Algebra/Number Theory/Combinatorics Seminar of the Claremont Colleges	<i>September 2022</i>
Spinning switches on a wreath product	
Joint Mathematics Meetings	<i>April 2022</i>
The expected value of letters in permutations with a given number of k -cycles	
USC's Graduate Student Colloquium	<i>September 2021</i>
Convex Polyhedra with Regular Polygonal Faces and Vertices in \mathbb{Z}^n	
Graduate Student Combinatorics Conference	<i>April 2021</i>
A Generalized Spinning Switches Puzzle	
24-hour Maths Magic Show	<i>October 2020</i>
Communicating the Card: An Example of Hall's Theorem	
USC's Graduate Geometry Seminar	<i>February 2020</i>
Polytopes and Tilings of the Hyperbolic Plane: Schläfli symbols and Conway notation	
USC's Graduate Algebra Seminar	<i>October 2019</i>
Enumerating States in the Tile Game "Palago" with Burnside's Lemma	
Graduate Student Combinatorics Conference	<i>April 2019</i>
Counting Subgraph Structures of the $n \times k$ Grid Graph	
Graduate Student Combinatorics Conference	<i>April 2018</i>
Extending Ron Graham's Sequence and Other Explorations in the OEIS	

AWARDS AND MENTIONS

Joint Mathematics Meeting: Bridges Art Exhibition	<i>January 2025</i>
Hinged Stellation	
MAA Project NExT Fellow	<i>2024–2025</i>
Blue '24	
Sundeman Scholar Award	<i>February 2024</i>
Harvey Mudd College	
Joint Mathematics Meeting: Bridges Art Exhibition	<i>January 2024</i>
Triangle Center Fractals	
Finalist for Faculty Leadership Award	<i>Spring 2023</i>
Harvey Mudd College, (1 of 4 finalists)	
HMC Department of Mathematics Art Exhibition — Quod Erat Ars	<i>Spring 2013</i>
Truncated Trihexagonal Truchet Tiling	
Dennis Ray Estes Teaching Prize	<i>Spring 2022</i>
University of Southern California Math Department	
Mentioned in <i>Pour La Science</i>	<i>March 2021</i>
"Addition et multiplication, des tables qui intriguent"	
Graduate School Fellowship	<i>Fall 2017 and Spring 2019</i>
USC Dornsife College of Letters, Arts and Sciences	
US National Collegiate Mathematics Championship	<i>July 2014</i>
Fifth place winner	
Botand Gabor Eross Scholarship for Outstanding Work in Mathematics	<i>2014</i>
Oregon State University	
William Lowell Putnam Mathematical Competition	<i>2013</i>
Oregon State University top scorer award	