PETER KAGEY

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WORK

California State Polytechnic University, Pomona *August 2024–present*
Assistant Professor of Mathematics

Harvey Mudd College *July 2022–June 2024*
Visiting Assistant Professor of Mathematics

University of Southern California *August 2017–July 2022*
Assistant Lecturer and Teaching Assistant

Dexcom *December 2014–August 2017*
Software engineer

EDUCATION

University of Southern California *August 2017–July 2022*
Ph.D. in Mathematics under Sami Assaf
Dissertation Title: *Permutations, Statistics, and Switches*

University of Southern California *August 2017–May 2020*
M.A. in Mathematics

Oregon State University *September 2011–June 2014*
B.S. in Mathematics

TEACHING

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

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

RESEARCH

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

Project Euler *Winter 2018*
Problem Contributor (Problem 619)

TALKS

Joint Mathematics Meetings *January 2025*
AMS Special Session: Using 3D-Printed [...] Objects in the Mathematics Classroom
Embodied Mathematics: Reflections on Teaching "Making Mathematics"

Cal Poly Pomona Math and Stats Math and Stats Colloquium *October 2024*
Counting Lyndon words with a given prefix

MAA SoCal/Nevada Fall 2024 Section Meeting *October 2024*
On Ron Graham's Sequence and a Longstanding Conjecture

MathFest *August 2024*
MAA Invited Paper Session on Mathematics and Art
Enumerating Truchet Tilings and Afghan Squares

Algebra/Number Theory/Combinatorics Seminar of the Claremont Colleges *April 2024*
Building TOWARD Geometry: Truncated Octahedra Work As Rhombic Dodecahedra

Guest lecture at the University of Pennsylvania *March 2024*
The Art and Mathematics of Story-centered Research

Gathering 4 Gardner *February 2024*
Spinning Switches on a Wreath Product

Whittier College (Invited) *February 2024*
Recreational Math and Combinatorial Algorithms

Cal Poly Pomona Math and Stats Colloquium (Invited) *February 2024*
Mathematical Art and Recreation

Claremont Colleges Mathematical Sciences Colloquium (Invited) *January 2024*
Math as Art and Recreation

Joint Mathematics Meeting *January 2024*
AMS Special Session: Using 3D-Printed [...] Objects in the Mathematics Classroom
Illustrating Multivariable Calculus Concepts In The Makerspace

Joint Mathematics Meeting *January 2024*
AMS Contributed Paper Session on Combinatorics
Counting Arbitrary Tilings of the $n \times m$ Square Grid, Cylinder, and Torus

USC Probability/Statistics Seminar (Invited) *November 2023*
Permutations with a given number of k-cycles

Southern California Discrete Math Conference *November 2023*
Ranking and Unranking Restricted Words

Guest lecture at Cal State LA *October 2023*
Math is for People: A Conversation About Math Anxiety

MAA SoCal/Nevada meeting *October 2023*
Counting arbitrary tilings of the $n \times m$ grid under topological identifications

Rutgers Virtual Seminar for Open Problems *November 2022*
A Collection of Open Problems

Cal Poly Pomona Math and Stats Colloquium *October 2022*
Spinning switches on a wreath product

Algebra/Number Theory/Combinatorics Seminar of the Claremont Colleges *September 2022*
Spinning switches on a wreath product

Joint Mathematics Meetings *April 2022*
The expected value of letters in permutations with a given number of k-cycles

USC's Graduate Student Colloquium *September 2021*

Convex Polyhedra with Regular Polygonal Faces and Vertices in $\mathbb{Z}^n$

Graduate Student Combinatorics Conference *April 2021*

A Generalized Spinning Switches Puzzle

24-hour Maths Magic Show *October 2020*

Communicating the Card: An Example of Hall's Theorem

USC's Graduate Geometry Seminar *February 2020*

Polytopes and Tilings of the Hyperbolic Plane: Schläfli symbols and Conway notation

USC's Graduate Algebra Seminar *October 2019*

Enumerating States in the Tile Game "Palago" with Burnside's Lemma

Graduate Student Combinatorics Conference *April 2019*

Counting Subgraph Structures of the $n \times k$ Grid Graph

Graduate Student Combinatorics Conference *April 2018*

Extending Ron Graham's Sequence and Other Explorations in the OEIS

AWARDS AND MENTIONS

Joint Mathematics Meeting: Bridges Art Exhibition *January 2025*

Hinged Stellation

MAA Project NExT Fellow *2024–2025*

Blue '24

Sundeman Scholar Award *February 2024*

Harvey Mudd College

Joint Mathematics Meeting: Bridges Art Exhibition *January 2024*

Triangle Center Fractals

Finalist for Faculty Leadership Award *Spring 2023*

Harvey Mudd College, (1 of 4 finalists)

HMC Department of Mathematics Art Exhibition — Quod Erat Ars *Spring 2013*

Truncated Trihexagonal Truchet Tiling

Dennis Ray Estes Teaching Prize *Spring 2022*

University of Southern California Math Department

Mentioned in *Pour La Science* *March 2021*

"Addition et multiplication, des tables qui intriguent"

Graduate School Fellowship *Fall 2017 and Spring 2019*

USC Dornsife College of Letters, Arts and Sciences

US National Collegiate Mathematics Championship *July 2014*

Fifth place winner

Botand Gabor Eross Scholarship for Outstanding Work in Mathematics *2014*

Oregon State University

William Lowell Putnam Mathematical Competition *2013*

Oregon State University top scorer award