

PETER KAGEY

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WORK

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| 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

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| 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

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| MAT 4111A: Putnam Preparation | <i>Scheduled Fall 2025, CPP</i> |
| MAT 3100: Introduction to Mathematical Proof | <i>Scheduled 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
MATH 229: Calculus III for Engineers and Scientists
MATH 126: Calculus II

Fall 2019, USC
Fall 2018, USC
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.
 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

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| Prison Mathematics Project | <i>October 2022–present</i> |
| Mentor | |
| On-Line Encyclopedia of Integer Sequences | <i>May 2019–present</i> |
| Associate Editor with over 800 contributions | |
| National Math Camps | <i>June 2025</i> |
| Faculty for a nine-class series on higher-dimensional geometry | |
| Claremont Colleges Women's Association for Computing Machinery | <i>November 2023</i> |
| Invited to lead a workshop in HMC's Makerspace | |
| Gateway to Exploring Mathematical Sciences | <i>November 2023</i> |
| Designed and led workshop for eighth, ninth and tenth grade students | |
| USC's Directed Reading for Undergraduates Program | <i>Spring 2022</i> |
| Graduate student mentor | |
| Bridge to Enter Advanced Mathematics | <i>May 2020–December 2022</i> |
| Volunteer Tutor | |
| USC Mathematics Graduate Student Association | <i>August 2018–June 2021</i> |
| President | |
| USC Graduate Student Colloquium | <i>Fall 2021</i> |
| Co-organizer | |
| USC Graduate Geometry Seminar | <i>Spring 2020</i> |
| Co-organizer | |
| USC Graduate Algebra Seminar | <i>Fall 2019</i> |
| Co-organizer | |
| Venice Math Circle | <i>Fall 2018</i> |
| Volunteer | |
| Project Euler | <i>Winter 2018</i> |
| Problem Contributor (Problem 619) | |

TALKS

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| Joint Mathematics Meetings <i>AMS Special Session: Using 3D-Printed [...] Objects in the Mathematics Classroom</i> Embodied Mathematics: Reflections on Teaching “Making Mathematics” | <i>January 2025</i> |
| Cal Poly Pomona Math and Stats Math and Stats Colloquium Counting Lyndon words with a given prefix | <i>October 2024</i> |
| MAA SoCal/Nevada Fall 2024 Section Meeting On Ron Graham’s Sequence and a Longstanding Conjecture | <i>October 2024</i> |
| MathFest <i>MAA Invited Paper Session on Mathematics and Art</i> Enumerating Truchet Tilings and Afghan Squares | <i>August 2024</i> |
| Algebra/Number Theory/Combinatorics Seminar of the Claremont Colleges Building TOWARD Geometry: Truncated Octahedra Work As Rhombic Dodecahedra | <i>April 2024</i> |
| Guest lecture at the University of Pennsylvania The Art and Mathematics of Story-centered Research | <i>March 2024</i> |
| Gathering 4 Gardner Spinning Switches on a Wreath Product | <i>February 2024</i> |
| Whittier College (Invited) Recreational Math and Combinatorial Algorithms | <i>February 2024</i> |
| Cal Poly Pomona Math and Stats Colloquium (Invited) Mathematical Art and Recreation | <i>February 2024</i> |
| Claremont Colleges Mathematical Sciences Colloquium (Invited) Math as Art and Recreation | <i>January 2024</i> |
| Joint Mathematics Meeting <i>AMS Special Session: Using 3D-Printed [...] Objects in the Mathematics Classroom</i> Illustrating Multivariable Calculus Concepts In The Makerspace | <i>January 2024</i> |
| Joint Mathematics Meeting <i>AMS Contributed Paper Session on Combinatorics</i> Counting Arbitrary Tilings of the $n \times m$ Square Grid, Cylinder, and Torus | <i>January 2024</i> |
| USC Probability/Statistics Seminar (Invited) Permutations with a given number of k -cycles | <i>November 2023</i> |
| Southern California Discrete Math Conference Ranking and Unranking Restricted Words | <i>November 2023</i> |
| Guest lecture at Cal State LA Math is for People: A Conversation About Math Anxiety | <i>October 2023</i> |
| MAA SoCal/Nevada meeting Counting arbitrary tilings of the $n \times m$ grid under topological identifications | <i>October 2023</i> |
| Rutgers Virtual Seminar for Open Problems A Collection of Open Problems | <i>November 2022</i> |
| Cal Poly Pomona Math and Stats Colloquium Spinning switches on a wreath product | <i>October 2022</i> |
| Algebra/Number Theory/Combinatorics Seminar of the Claremont Colleges Spinning switches on a wreath product | <i>September 2022</i> |
| Joint Mathematics Meetings The expected value of letters in permutations with a given number of k -cycles | <i>April 2022</i> |
| USC’s Graduate Student Colloquium Convex Polyhedra with Regular Polygonal Faces and Vertices in \mathbb{Z}^n | <i>September 2021</i> |
| Graduate Student Combinatorics Conference A Generalized Spinning Switches Puzzle | <i>April 2021</i> |
| 24-hour Maths Magic Show | <i>October 2020</i> |

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| 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

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| 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 | |