Evan M. O'Dorney

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EDUCATION

- Ph.D. student at Princeton (expected class of 2021 or 2022)

- Part III of the Mathematical Tripos, Cambridge University (class of 2016)

- B.A. summa cum laude in mathematics at Harvard College (class of 2015)

PUBLICATIONS

Journal articles

- On higher composition laws and reflection theorems:

  1. Brandon Alberts and Evan O'Dorney. Harmonic analysis and statistics of the first Galois cohomology group. Preprint (2021), available at `arxiv.org/abs/2102.11223`
  2. Evan M. O'Dorney. On a remarkable identity in class numbers of cubic rings. *Journal of Number Theory*, 176:302–332, 2017
  3. Evan M. O'Dorney. Rings of small rank over a Dedekind domain and their ideals. *Res. Math. Sci.*, 3:3:8, 2016

- On assorted topics:

  1. Evan O'Dorney. Visibly irreducible polynomials over finite fields. *Amer. Math. Monthly*, 127(2):112–124, 2020
  2. Ian Le and Evan O'Dorney. Geometry of positive configurations in affine buildings. *Doc. Math.*, 22:1519–1538, 2017
  3. Evan O'Dorney. Canonical rings of $\mathbb{Q}$-divisors on $\mathbb{P}^1$. *Ann. Comb.*, 19(4):765–784, 2015
  4. Evan O'Dorney. Continued fractions and linear fractional transformations. *Integers*, 15:Paper No. A1, 23, 2015
  5. Evan O'Dorney. Minimizing the Cayley transform of an orthogonal matrix by multiplying by signature matrices. *Linear Algebra Appl.*, 448:97–103, 2014
  6. Evan O'Dorney. Degree asymptotics of the numerical semigroup tree. *Semigroup Forum*, 87(3):601–616, 2013

Books

1. Daniel Kane, Jonathan Kane, Kiran Kedlaya, and Evan O'Dorney. *The William Lowell Putnam Mathematical Competition 2001–2016: Problems, Solutions, and Commentary.* AMS/MAA Press, 2020.

HONORS

Mathematical

- NSF Graduate Research Fellowship Program award (2016-present)
  The GRFP gives a graduate student 3 years to pursue research unhindered by teaching duties.

- Morgan Prize Honorable Mention (2015)
  The Morgan Prize is given annually to a U.S. undergraduate student who has done outstanding research.

- Churchill Scholarship (2015)
  Funds one year of post-graduate study at Cambridge University.

- Putnam Fellow (2011, 2012, 2013)
  North America's premier undergraduate math competition. Five winners are designated Fellows.

- International Mathematical Olympiad: gold medals (2010, 2011), silver medals (2008, 2009)
  The world's premier high-school math competition. A country selects a 6-member team. Gold medals are awarded to the top ~50 competitors.

- USA Mathematical Olympiad top score (2008, 2010, 2011)

- Intel [now Regeneron] Science Talent Search national champion (2011)
  Won a $100K scholarship for my high-school research "Continued fractions and linear transformations."

Non-mathematical

- Harvard-Radcliffe Collegium Musicum Student Composition Competition winner (2015)
  My choral anthem "Hymn" was performed in a concert commemorating the Civil War and at Harvard's graduation ceremony.

- Scripps National Spelling Bee Champion (2007)

TEACHING AND WORK EXPERIENCE

- Graduate-student instructor:

  - Multivariable calculus (spring 2020)

- Grader, holding office hours:

  - Introductory abstract algebra (fall 2019)
  - Introductory algebraic geometry (2015)
  - Linear algebra with proofs (2014)
  - Introductory point-set topology (2012)

- Counselor at Ross Mathematics Program (summer 2019)
  The Ross program is a six-week inquiry-based introduction to proof-based mathematics through number theory. I supervised four high-school students.

- Tutored a student in high-school calculus (eight 1-hour sessions, summer 2017)

- Mathematical Olympiad Summer Program grader and instructor (2012, 2013, three weeks each)

- Monthly Contest coordinator for Berkeley Math Circle (2008-2015)
  I selected and/or composed 5 problems per month for high school and below, with solutions.

PRESENTATIONS
Research talks

- "Reflection theorems for class numbers of binary forms." West Coast Number Theory, Dec. 19, 2019.

- "Singular moduli for real quadratic fields." Princeton-IAS learning seminar "Singular moduli for real quadratic fields," led by Jan Vonk. Nov 21, 2019.

- "New relations of Ohno-Nakagawa type." Princeton learning seminar, led by students of Manjul Bhargava. Sep 27, 2019.

- "Ohno-Nakagawa-type relations among class numbers." Princeton seminar led by Manjul Bhargava. Oct 19, 2018.

- "Remarkable identities in the counting functions for cubic and quartic rings." Graduate Student Seminar, Princeton Univ, Feb 9, 2017.

- "An identity on class numbers of cubic rings." Number Theory Seminar, Univ of Cambridge, May 17, 2016.

- "Degree asymptotics of the numerical semigroup tree." (On my Duluth REU project.) Joint Mathematics Meetings, Jan 11, 2013.

- "Permutation puzzles." (On my Duluth REU project.) Joint Mathematics Meetings, Jan 7, 2011.

- "The Dynamics of Continued Fractions." (On my Intel STS project.) MathFest, Aug 7, 2010.

Expository talks

- "Poonen's Bertini theorem." For the Princeton-IAS learning seminar "Geometric applications of the Langlands correspondence," led by Kiran Kedlaya. Mar 13, 2019.

- "A number theorist's introduction to Galois cohomology." Graduate Student Seminar, Princeton University, Sep 20, 2018.