
Education

- 2017–2023 **Doctor of Philosophy (Mathematics)**, *Penn State University, University Park, PA*
Dissertation: *Two studies in complexity*. Advisors: Jan Reimann and Linda Westrick.
- 2017–2021 **Master of Arts (Mathematics)**, *Penn State University*
Paper: *Hyperbolic dynamical systems*. Advisor: Boris Kalinin.
- 2013–2017 **Bachelor of Science (Pure mathematics)**, *West Chester University of PA*
- Other
- 2016 Graduate of Mathematics Advanced Study Semesters (MASS) program at Penn State.
Received awards for most difficult projects in geometry (Teichmüller theory) and in algebra (octonions and the E_8 lattice).
- 2011–2012 Coursework in the Department of Music and general education, Princeton University

Research interests

Computability theory, Weihrauch complexity in reverse mathematics, infinite Ramsey theory and computable combinatorics, probabilistic automata.

Publications

- Probabilistic automatic complexity of finite strings, in preparation (2023).
- Indivisibility and uniform computational strength, preprint (2023). [arXiv:2312.03919](https://arxiv.org/abs/2312.03919).
- A note on the indivisibility of the Henson graphs, preprint (2023). [arXiv:2310.20097](https://arxiv.org/abs/2310.20097).
- (with D. Costa, V. Davis, G. Hinkle, and L. Reid) Eulerian properties of non-commuting and non-cyclic graphs of finite groups, *Comm. Alg.* **46** (2018), 2659–2665. [doi:10.1080/00927872.2017.1392534](https://doi.org/10.1080/00927872.2017.1392534).
- (with V. Nițică) Signed tilings by ribbon L n -ominoes, n even, via Gröbner bases, *Open Journal of Discrete Mathematics* **6** (2016), 185–206. [doi:10.4236/ojdm.2016.63017](https://doi.org/10.4236/ojdm.2016.63017).

Contributed talks

- Nov. 2023 MAA EPaDel-NJ Section Meeting *Probabilistic automatic complexity*
- Apr. 2023 Penn State Logic Seminar *Indivisibility and uniform computational strength*
- Jan. 2023 Penn State Logic Seminar *Complexity measures for finite strings using probabilistic automata*

Teaching

The Pennsylvania State University, University Park, PA:

- MATH 251: Ordinary and Partial Differential Equations (Fall 2021 & Fall 2022)
Lectured for 8 hours per week, wrote lecture notes, administered homework, wrote and graded quizzes, graded and helped design exams, held office hours and review sessions.
- MATH 220: Matrices (Fall 2020 & Spring 2021)
Lectured online for 4–6 hours per week (depending on semester), administered homework and quizzes, graded and helped design exams, held office hours.
- MATH 41: Trigonometry and Analytic Geometry (Fall 2019)
- MATH 26: Plane Trigonometry (Fall 2018 & Spring 2019)
- MATH 21: College Algebra I (Spring 2018)
Lectured for 3–8 hours per week (depending on semester), administered homework, wrote and graded quizzes, helped design exams, held office hours and review sessions.
- Grader for MATH 403: Classical Analysis I (Fall 2017)
Graded weekly homework for about 45 students in 2 regular sections and 1 honors section.