
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

- A note on the indivisibility of the Henson graphs, preprint (2023). [arXiv:2310.20097](#). Submitted to *Notre Dame Journal of Formal Logic*.
- Probabilistic automatic complexity of finite strings, preprint (2024). [arXiv:2402.13376](#).
- Indivisibility and uniform computational strength, preprint (2023). [arXiv:2312.03919](#).
- (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](#).
- (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](#).

Contributed talks

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| May 2024 | ASL 2024 North American Annual Meeting | <i>Probabilistic automatic complexity</i> |
| Nov. 2023 | MAA EPaDel-NJ Section Meeting | <i>Probabilistic automatic complexity</i> |
| Apr. 2023 | Penn State Logic Seminar | <i>Indivisibility and uniform computational strength</i> |
| Jan. 2023 | Penn State Logic Seminar | <i>Complexity measures for finite strings using probabilistic automata</i> |

Teaching

The Pennsylvania State University, University Park, PA:

Taught as the instructor of record for 3–8 lecture hours per week (depending on semester). Helped prepare and grade quizzes, exams, homework. Held office hours and review sessions.

- MATH 251: Ordinary and Partial Differential Equations (Fall 2021 & Fall 2022)
- MATH 220: Matrices (Fall 2020 & Spring 2021)
- MATH 41: Trigonometry and Analytic Geometry (Fall 2019)
- MATH 26: Plane Trigonometry (Fall 2018 & Spring 2019)
- MATH 21: College Algebra I (Spring 2018)
- Grader for MATH 403: Classical Analysis I (Fall 2017; weekly homework for about 45 students).