Kenneth Gill

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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, preprint (2024). `arXiv:2402.13376`.
- Indivisibility and uniform computational strength, preprint (2023). `arXiv:2312.03919`.
- A note on the indivisibility of the Henson graphs, preprint (2023). `arXiv:2310.20097`. Submitted to *Notre Dame Journal of Formal Logic*.
- (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. Niţică) 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

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; weekly homework for about 45 students).