John Byrne

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EDUCATION

University of Delaware (expected graduation $\sim$ 2026)
Ph.D. in Mathematics
Advisors: Sebastian Cioabă and Michael Tait (Villanova)

University of Kansas (graduated 2021)
B.S. in Mathematics
B.S. in Economics
Minor in French

INTERESTS

Spectral and algebraic graph theory, extremal combinatorics

PUBLICATIONS

3. A general theorem in spectral extremal graph theory, submitted, with Dheer Noal Desai and Michael Tait.

2. Forbidden subgraphs and complete partitions, submitted, with Michael Tait and Craig Timmons.

1. Improved upper bounds on even-cycle creating Hamilton paths, submitted, with Michael Tait.

TALKS

"Forbidden subgraphs and complete partitions." Binghamton University Graduate Combinatorics, Algebra, and Topology Conference. November 11, 2023.

"Improved upper bounds on even-cycle creating Hamilton paths." AMS Fall Eastern Sectional, Special Session on Recent Trends in Spectral Graph Theory, University at Buffalo. September 10, 2023.

"Forbidden subgraphs and complete partitions." Discrete Mathematics / Algebra Seminar, University of Delaware. September 1, 2023.

"Improved bounds on even cycle creating Hamilton paths." Discrete Mathematics / Algebra Seminar, University of Delaware. April 18, 2023.

"Hamiltonian cycles in irregular pseudorandom graphs." Graduate Student Combinatorics Conference, Washington University in St. Louis. March 18, 2023.

"Polarity graphs and even cycle creating Hamiltonian paths." Hallenbeck Graduate Student Seminar, University of Delaware. March 6, 2023.

TEACHING

University of Delaware
2024 winter - Linear algebra preliminary exam review sessions
2023 fall - TA for MATH 230 (Finite Mathematcics) and MATH 243 (Calculus III)
2023 summer - Instructor for MATH 243 (Calculus III)

2023 spring - TA for MATH 242 (Calculus II)
2022 fall – TA for MATH 243 (Calculus III)
2022 spring – TA for MATH 242 (Calculus II)
2021 fall – TA for MATH 221 (Calculus I)

University of Kansas
2021 spring – Grader for Discrete Mathematics
2018 fall – Tutor for Elementary Statistics

MENTORING   Directed Reading Program (2022 fall)
Mentored an undergraduate student; studied discrete random variables and their application to portfolio optimization

GEMS (2022 summer)
Ten-week research project with an undergraduate student; studied the Lubotzky-Phillips-Sarnak graphs and investigated their independence number

REFEREE   I have served as a reviewer for submissions to the following journals:

Discrete Mathematics (2)
Electronic Journal of Linear Algebra (2)
Linear Algebra and its Applications (3)