

Hans Parshall

Department of Mathematics
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Education

Ph.D. Mathematics, University of Georgia, August 2017.

Point configurations over finite fields, under the direction of Neil Lyall and Ákos Magyar.

B.A. Mathematics, Humboldt State University, May 2011.

Positions

Zassenhaus Assistant Professor, The Ohio State University, August 2017 – present.

Research Interests

interactions between combinatorics, discrete geometry, Fourier analysis and number theory.

Publications

“Embedding distance graphs in finite field vector spaces” (with A. Iosevich)
submitted, preprint available at arXiv:1802.06460

“On the quotient set of the distance set” (with A. Iosevich and D. Koh)
to appear in *Mosc. J. Comb. Number Theory*

“Spherical configurations over finite fields” (with N. Lyall and Á. Magyar)
to appear in *Amer. J. Math.*

“Simplices over finite fields”
Proc. Amer. Math. Soc. 145 (2017), 2323-2334.

“Small gaps between configurations of prime polynomials”
J. Number Theory 162 (2016), 35-53.

“Primes represented by binary quadratic forms” (with P. L. Clark, J. Hicks, and K. Thompson)
Integers 13 (2013), A37.

In Preparation

“The optimal packing of eight points in the real projective plane” (with D. Mixon)

“Small unit-distance graphs in the plane” (with A. Globus*)

*undergraduate coauthor

Selected Talks

“Optimally packing points on the sphere”

Combinatorics Seminar, University of Rochester, Nov 2018.

“Falconer-type problems over finite fields”

Spring Mini Courses in Analysis and Geometry, Louisiana State University, Feb 2018.

West Coast Number Theory, Pacific Grove, Dec 2017.

“Three-term arithmetic progressions”

Colloquium, California State University, Chico, Oct 2017.

Colloquium, Humboldt State University, Oct 2017.

“Spherical configurations over finite fields”

Combinatorial and Additive Number Theory, CUNY Graduate Center, May 2017.

Joint Mathematics Meetings, Atlanta, Jan 2017.

Analysis Seminar, The Ohio State University, Nov 2016.

Colloquium, Missouri State University, Nov 2016.

Number Theory Seminar, University of Georgia, Nov 2016.

INTEGERS, University of West Georgia, Oct 2016.

“Long arithmetic progressions of twin primes”

Gaps Between Primes and Analytic Number Theory, Summer Graduate School, MSRI, July 2015.

Number Theory Seminar, University of Georgia, Apr 2015.

Upcoming Invited Talks

Second Vietnam Workshop on Graph Theory and Discrete Geometry, Hanoi, Jan 2019.

Special Session on Frame Theory, SampTA 2019, Bordeaux, July 2019.

Subspace Packings, SIAM Conference on Applied Algebraic Geometry, Bern, July 2019.

Workshops

NSF-CBMS Additive Combinatorics from a Geometric Viewpoint, USC Columbia, May 2018.

Spring Mini Courses in Analysis and Geometry, Louisiana State University, Feb 2018.

Introductory Workshop, Analytic Number Theory, MSRI, Feb 2017.

Introductory Workshop, Harmonic Analysis, MSRI, Jan 2017.

Gaps Between Primes and Analytic Number Theory, Summer Graduate School, MSRI, July 2015.

Summer School in Computational Number Theory, UNC Greensboro, May 2015.

Algebraic Techniques for Combinatorial and Computational Geometry, IPAM, May 2014.

Teaching

Undergraduate Mentoring

Aidan Globus, 2018.

research project on unit-distance graphs, joint publication in preparation.

Nader Zidan, 2018.

directed reading in number theory and cryptography, internship application pending.

High School Outreach

Young Scholars Summer Bridge Experience, The Ohio State University, Summer 2018.

Ross Mathematics Program, The Ohio State University, Summer 2018.

Primes and Cryptography, UGA MathCamp, University of Georgia, Summer 2016.

Courses at The Ohio State University

Linear Algebra, Spring 2019.

Engineering Mathematics A, Fall 2017, Fall 2018 ($\times 2$).

a hybrid between traditional Calculus II and Calculus III for prospective engineers.

Foundations of Higher Mathematics, Spring 2018 ($\times 2$).

Courses at University of Georgia

Precalculus, Fall 2013, Spring 2015, Spring 2017 ($\times 2$).

Calculus I for Science and Engineering, Spring 2014, Fall 2014, Fall 2016.

Arithmetic and Problem Solving, Spring 2016.

an activity-based course for prospective elementary teachers.

Calculus II for Science and Engineering, Fall 2015.

Service

The Ohio State University

Ximera Calculus II committee, Spring 2018 – present.

University of Georgia

Graduate student ombudsman, Department of Mathematics, 2012–2017.

Co-organizer, Graduate Summer Program, Department of Mathematics, 2017.

Panelist, AWM Career Panel, Apr 2017.

Panelist, NSF RTG Professional Development Seminar, Mar 2016, June 2016.

Organizer, Graduate Student Seminar, Department of Mathematics, Fall 2015.

Founding treasurer, Graduate Student Chapter of the AMS, 2014–2015.

Professional

Referee, *Journal of Fourier Analysis and Applications, Finite Fields and Their Applications*.

Member, American Mathematical Society, 2011 - present.

Fellowships & Awards

William Armor Wills Memorial Scholarship, University of Georgia, 2017.

Outstanding Teaching Assistant Award, University of Georgia, 2017.

Presidential Graduate Fellow, University of Georgia, 2011–2016.

Scientific Leadership Scholar, Humboldt State University, 2009–2011.

Robert S. Chambers Mathematics Scholarship, Humboldt State University, 2010.

Harry S. Kieval Mathematics Scholarship, Humboldt State University, 2009.

Waldemar J. Trjitzinsky Award, American Mathematical Society, 2008.

Harry S. Kieval Mathematics Transfer Scholarship, Humboldt State University, 2008.

Software Proficiency

Course management: Canvas, Desire2Learn, Moodle, Piazza.

Homework: ALEKS, MyMathLab, WebAssign, WeBWorK, Ximera.

Languages: HTML, L^AT_EX, Python.

Mathematics: Desmos, Geogebra, Mathematica, MATLAB, Sage.

References

Research

Alex Iosevich, University of Rochester

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Neil Lyall, University of Georgia

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Ákos Magyar, University of Georgia

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Dustin Mixon, The Ohio State University

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Teaching

Joe Fu, University of Georgia

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Jim Talamo, The Ohio State University

talamo.2@osu.edu