Darren B. Parker

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Education

Ph.D. in Mathematics, University of Wisconsin – Madison *May 1998*

Area: Algebra Minor: Mathematics Education
Advisor Donald S. Passman

B.A. in Mathematics (Honors in Mathematics) *May 1992*

Other

Passed Actuarial Exam 1/P (Probability) with a score of 8.

Research

My areas of research include **Graph Theory, Hopf Algebras, Coalgebras**.

Grants

Research Council SEED Grant Award,
University of Dayton *Summers 2002, 2003, 2004*

Professional Improvement Grant, Bemidji State University *January 2001*

Experience

Department of Mathematics *August 2007 – Present*
Grand Valley State University

Visiting Assistant Professor of Mathematics Teach 12 credits per semester. Courses taught are College Algebra, Trigonometry, Calculus 1, Calculus 2, Calculus 3, and an introductory proof course for math majors.

Department of Mathematics *August 2001 – May 2007*
University of Dayton

Assistant Professor of Mathematics Teach 3 courses per semester, advise students, research, and serve on committees. Courses taught are Contemporary Mathematics (Liberal Arts course), Finite Mathematics, Business Calculus, Mathematics for Elementary Teachers 1, Technical Mathematics, Calculus 1, Calculus 2, Calculus 3, Differential Equations, Linear Algebra, Abstract Algebra, Number Theory, and Topology.

Department of Mathematics/Computer Science *August 1998 – May 2001*
Bemidji State University

Assistant Professor of Mathematics Teach 12 credits per semester, advise students, research, and serve on committees. Courses taught are College Algebra, Algebra and Math Reasoning (a liberal arts course), Math for Elementary Teachers

2, Calculus for business and biological science majors, Foundations and Discrete Mathematics (an introductory proof course), and Linear Algebra. I have also participated in the Summer Mathematics Institute, a summer workshop for elementary and middle school teachers funded by the Eisenhower foundation. Topics included geometry, data investigation, probability, and discrete mathematics.

Department of Mathematics *September 1992 – December 1997*
University of Wisconsin – Madison

Teaching Assistant Instructor for trigonometry, Calculus 1, 2, and 3, and Business Calculus. Includes experience teaching in the Wisconsin Emerging Scholars program, where students work in small groups solving difficult problems facilitated by the T.A. Rated "Superior" by the T.A. evaluation committee (the highest possible rating) for Fall 1996 and Fall 1997. Also employed as an assistant in "Jumpstart Program", an intensive two-week summer program designed to help students with deficient backgrounds in algebra and trigonometry to place into Calculus 1.

Publications

1. D.B. Parker, *Forms of Coalgebras and Hopf Algebras*, J. Algebra, **239** (2001), pp. 1–34.
2. D.B. Parker, *$U(\mathfrak{g})$-Galois Extensions*, Comm. Algebra, **29** (2001), pp. 2859–2870.
3. D.B. Parker, *On the Coradical Filtration of Pointed Coalgebras*, J. Algebra, **255** (2002), pp. 121–134.
4. A. Abueida, W.S. Diestelkamp, S.P. Edwards, and D.B. Parker, *Determining Properties of a Multipartite Tournament from its Lattice of Convex Subsets*, Australasian J. Combinatorics, **31** (2005), pp. 217–230.
5. D.B. Parker, R.F. Westhoff, and M.J. Wolf, *Two-Path Convexity in Clone-Free Regular Multipartite Tournaments*, Australasian Journal of Combinatorics **36** (2006), pp. 177–196.
6. A. Abueida, M. Daven, W.S. Diestelkamp, S.P. Edwards, and D.B. Parker, *Multidesigns for Graph-Triples of Order 6*, Congressus Numerantium **183** (2006), pp. 139–160.
7. D.B. Parker, R.F Westhoff, and M.J. Wolf, *On Two-Path Convexity in Multipartite Tournaments*, European Journal of Combinatorics **29** (2008), pp. 641–651.
8. D.B. Parker, R.F. Westhoff, and M.J. Wolf, *Two-Path Convexity and Bipartite Tournaments of Small Rank*, to appear in Ars Combinatoria.
9. D.B. Parker, R.F. Westhoff, and M.J. Wolf, *Convex Independence and the Structure of Clone-Free Multipartite Tournaments*, to appear in Discussiones Mathematicae Graph Theory.
10. A. Giffen and D.B. Parker, *On Generalizing the "Lights Out" Game and a Generalization of Parity Domination*, submitted to Ars Combinatoria.

In Progress

1. D.B. Parker and R.F. Westhoff, *Convex Invariants in Multipartite Tournaments.*
2. D.B. Parker, R.F. Westhoff, and M.J. Wolf, *Cycles in Bipartite Tournaments of Rank 2.*

Selected Talks

- "A Mathematician Takes the Actuarial Exam", Mathematics Department Seminar, Grand Valley State University, Allendale, MI; Mathematics Colloquium, Hope College, Holland, MI, October 2008.
- "On Generalizing the "Lights Out" Game and a Generalization of Parity Domination", Invited Speaker, AMS Sectional Meeting Special Session, Western Michigan University, Kalamazoo, MI October 2008.
- "Some Mathematical Games", Mathematics Department Seminar, Grand Valley State University, Allendale, MI; Mathematics Colloquium, Hope College, Holland, MI, October 2007.
- "Group Theory and 'Lights Out' ", MAA Mathfest, Knoxville, TN, August, 2006.
- "Multidesigns for Graph-Triples of Order 6", Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, Boca Raton, FL, March, 2006.
- "Cycles in Bipartite Tournaments", Contributed Paper Session, Joint Mathematics Meetings, San Antonio, TX January 2006.
- "Convex Invariants in Multipartite Tournaments", Midwest Graph Theory Conference, Middle Tennessee State University, Murfreesboro, TN September 2005.
- "The Mathematics of Games", Invited Speaker, University of Dayton High School Mathematics Competition, University of Dayton, March 2005
- "The Classical Convexity Numbers in Two-Path Convexity", Midwest Graph Theory Conference, Ball State University, Muncie, IN November 2004.
- "Making Writing a Central Part of Mathematics Courses", Invited Speaker, Ohio Project NExT, John Carroll University, Cleveland, OH October 2004.

Service

Putnam/GRE Study Session: Ran study session for students competing in Putnam exam (Fall) and taking Mathematics GRE (Spring). *University of Dayton*

Colloquium Committee: Maintained web pages, invited speakers, and took care of logistics for visiting speakers. *University of Dayton*

Curriculum Committees: Helped to write department syllabi; helped to create a new discrete mathematics course for math majors and re-organize the probability/statistics sequence. *University of Dayton*

Integration Bee: Devised and typed integrals for the competition, acted as official timekeeper, along with other miscellaneous tasks.

Academic Senate: Participated in discussions about changes in general education and discipline-specific curricula.

Ohio MAA Committee on Curriculum

Research Seminar Co-Organizer: Helped organize and gave talks in a seminar designed to increase faculty interest and participation in research activities.
Bemidji State University