Adam H. Berliner

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Education

University of Wisconsin-Madison

Ph.D. in Mathematics, 2009
   Adviser: Richard A. Brualdi
   Thesis: *Determinants, Permanents, and the Enumeration of Forest-Partitions*
   Specialization: Combinatorial Matrix Theory, Graph Theory, Linear Algebra
   Minor: Mathematics Education
M.A. in Mathematics, 2004

Carleton College

B.A. in Mathematics with Distinction, summa cum laude, 2002

Positions Held & Teaching Experience

St. Olaf College (2009-Present)

Associate Professor of Mathematics (2015 - Present)
Assistant Professor of Mathematics (2009 - 2015)

Courses Taught: Calculus I with Review, Calculus I, Honors Calculus II, Elementary Linear Algebra, Multivariable Calculus, Abstract Algebra I, Advanced Linear Algebra, Matrix Theory, Graph Theory, Combinatorics, Research Opportunities for Sophomores in Science

University of Wisconsin - Madison (2002-2009)

- **Emerging Scholars & Supplemental Section Teaching Assistant:** Calculus I, II

- **Lecturer, Teaching Assistant, Course Coordinator:** College Algebra, Calculus I, Calculus II, Elementary Matrix & Linear Algebra

Peer-Reviewed Publications

1. Propagation time on digraphs (with C. Bozeman, L. Hogben, S. Butler, B. Kroschel, C. Lin, M. Catral, N. Warnberg, and M. Young), submitted for publication.

2. Nearly symmetric-decomposable matrices (with R. A. Brualdi), *Linear and Multilinear Algebra*, **63** (7), 1468-1484 (2015).

3. Path cover number, maximum nullity, and zero forcing number of oriented graphs and other simple digraphs (with C. Brown, J. Carlson, N. Cox, L. Hogben, J. Hu, K. Jacobs, K. Manternach, T. Peters, N. Warnberg, and M. Young), *Involve*, **8** (1), 147-167 (2015).

4. Minimum rank, maximum nullity, and zero forcing number of simple digraphs (with M. Catral, L. Hogben, M. Huynh, K. Lied, and M. Young), *Electronic Journal of Linear Algebra*, **26**, 762-780 (2013).

5. Convertible and m-convertible matrices, *Linear and Multilinear Algebra*, **60** (3), 267-283 (2012).

6. A Knight's Tour de Force, *Math Horizons*, **18**(4), 27-29 (2011).

7. Number of forest-partitions of a graph (with R. A. Brualdi), *Bulletin of the ICA*, **60**, 107-125 (2010).

8. Signed domination of graphs and $(0, 1)$-matrices (with R. A. Brualdi, L. Deaett, K. Kiernan, S. Meyer, and M. Schroeder), *Contemporary Mathematics*, **531**, 19-42 (2010).

9. Row and column orthogonal $(0, 1)$-matrices (with R.A. Brualdi, L. Deaett, K. Kiernan, and M. Schroeder), *Linear Algebra and its Applications*, **429** (11-12), 2732-2745 (2008).

10. A Combinatorial Proof of the Dodgson/Muir Determinantal Identity (with R. A. Brualdi), *International Journal of Information and Systems Sciences*, **4** (1), 1-7 (2008).

11. Acyclic Digraphs and Local Hierarchy Theory (with R. A. Brualdi, U. Bostelmann, and L. Deaett), *Mathematical and Computer Modelling*, **45** (5-6), 660-667 (2007).

12. Sum List Coloring Graphs (with R. A. Brualdi, U. Bostelmann, and L. Deaett), *Graphs and Combinatorics*, **22** (2), 173-183 (2006).

13. Appendix to "On Some Degenerate Deformations of Commutative Polynomial Rings," *Communications in Algebra*, **34** (6), 1949-1964, (2006).

Undergraduate Research Projects

1. Nathanael Cox (with C. Brown, J. Carlson, J. Hu, K. Jacobs, K. Manternach), Zero-forcing Number of Oriented Graphs, 2013-14.

2. Christopher Southard (with Prof. Justin Merritt), Symmetry on the Circle of Fifths: Sequences with full $\mathbb{Z}_n$ orbits, 2012-present.

3. Kelsey Lied, Minimum rank, maximum nullity, and zero forcing number of simple digraphs, 2011-12.

4. Robert Crandall, Enumerating Partitions of Generalized Stars, Summer 2011.

Grant-writing

1. NSA Young Investigator Grant, Variants of Ranks of Matrices Arising from Directed Graphs, \$38,695, 2014 (not funded).

2. St. Olaf Professional Development Grant, Combinatorial Matrix Theory Research and REU Mentoring, \$2,923, 2013 (funded).

Awards and Honors

1. Exxon Mobil MAA Project NExT Professional Development Fellowship, 2010-2011.

2. University of Wisconsin-Madison Capstone Ph.D. Teaching Award, 2007.

3. University of Wisconsin-Madison College of Letters & Science Teaching Fellowship, 2006.

4. Mathematics Dept. Excellence in Teaching Award, University of Wisconsin-Madison, 2007.

5. National Science Foundation VIGRE Graduate Fellowship, University of Wisconsin-Madison, 2002-2003, 2006, 2007.

6. Superior Teching Rating: 9 Semesters at UW-Madison.

7. Dean's List, Carleton College, 1998-2001.

Invited Conference Presentations

1. Minimum rank, maximum nullity, and zero forcing number of simple digraphs, International Linear Algebra Society Conference, 2013.

2. Minimum rank, maximum nullity, and zero forcing number of simple digraphs, Spring AMS Central Section Conference, 2013.

3. Minimal 2-Matching covered loopy graphs, MathFest Invited Paper Session on Combinatorics and Matrices, 2012.

4. 2-Matching covered loopy graphs, SIAM Annual Meeting mini-symposium on Matrices and Graphs, 2012.

5. 2-Matching covered loopy graphs, AMS/MAA Joint Mathematics Meetings, 2012.

6. On m-convertible matrices, AMS/MAA Joint Mathematics Meetings, 2009.

Other Invited Presentations

1. Airplane puzzles, games of strategy, and reality television, Carleton College, 2013.

2. Mathematics in Pop Culture, Games, and Puzzles, Beloit College, 2012.

3. Finding Mathematics in Puzzles and Games, Washington and Lee University, 2011.

4. The Pesky Permanent Problem, Minnesota State University, Mankato, 2009.

5. Can you see the forests for the trees?, St. Olaf College and Beloit College, 2008.

Contributed Conference Presentations

1. The Dodgson/Muir Determinantal Identity, Third Annual Graduate Student Combinatorics Conference, Seattle, WA, 2007.

2. Sidon Sequences and Magic Graphs, First Annual Graduate Student Combinatorics Conference, Minneapolis, MN, 2005.

3. Common eigenvectors for matrices $X_1, ..., X_m$ when $X_i X_j$ is scalar for $i < j$, Joint Mathematics Meetings, San Diego, CA, 2002.

College/Department Service

1. St. Olaf Steering Committee, Fund for the Improvement of Postsecondary Education First in the World Grant (with Bryn Mawr College), 2015-present.

2. Co-instructor, Research opportunities for sophomores in science (HHMI-supported), 2014.

3. NextUs Steering Committee, St. Olaf College, 2013-2015.

4. Curriculum Committee (New Proposals), St. Olaf College, 2012-2014.

5. Faculty Mentor for Problem Solving Group, St. Olaf College, 2009-present.

6. Tenure-Track Hiring Committees, St. Olaf College, 2010-11 and 2011-12.

7. Term Position Hiring Committee, St. Olaf College, 2010.

Professional/Educational Activities and Service

1. MAA Problems Book Series Editorial Board member, 2015-2018.

2. Vice President, Phi Beta Kappa Delta Chapter of Minnesota (St. Olaf College), 2014-2015.

3. Journals Refereed for: Linear Algebra and its Applications, Electronic Journal of Linear Algebra, 2008 - Present.

4. Special Session Co-Organizer, Matrices and Graphs, Fall AMS Central Section, Lincoln, NE, 2011.

5. Special Session Co-Organizer, Matrices and Graphs, Spring AMS Central Section, St. Paul, MN, 2010.

6. Co-Organizer, Second Annual Graduate Student Combinatorics Conference, Madison, WI, 2006

Conferences/Workshops Attended

1. AMS/MAA Joint Meetings, Baltimore, MD, 2014.

2. International Linear Algebra Society Conference, Providence, RI, 2013.

3. Spring AMS Central Section, Ames, IA, 2013.

4. MIdwestern GrapH TheorY (MIGHTY) Conference, Ames, IA, 2012.

5. MAA Mathfest, Madison, WI, 2012.

6. SIAM Annual Meeting, Minneapolis, MN, 2012.

7. AIM Research Experience for Undergraduate Faculty (REUF) Workshop, Providence, RI, 2012.

8. AMS/MAA Joint Meetings, Boston, MA, 2012.

9. AMS Central Section Conference, Lincoln, NE, 2011.

10. MAA Mathfest, Lexington, KY, 2011.

11. AMS/MAA Joint Meetings, New Orleans, LA, 2011.

12. MAA Mathfest, Pittsburgh, PA, August 2010.

13. 2010 NSF-CBMS Regional Conference: The Mutually Beneficial Relationship of Matrices and Graphs (Invited Participant), Ames, IA, 2010.

14. International Linear Algebra Society Conference, Pisa, Italy, 2010.

15. $(0, 1)$-Matrix Theory and Related Topics, University of Coimbra, Portugal, 2010.

16. AMS Central Section Conference, St. Paul, MN, April 2010.

17. CUR: Beginning a Research Program Institute, Grand Rapids, MI, November 2009.

18. AMS/MAA Joint Meetings, Washington, D. C., 2009.

19. MAA Mathfest, Madison, WI, 2008.

20. 3rd Annual Graduate Student Combinatorics Conference, Seattle, WA, 2007.

21. EMS Horizons of Combinatorics, Rényi Institute, Budapest, Hungary, 2006.

22. 2nd Annual Graduate Student Combinatorics Conference, Madison, WI, 2006.

23. Emerging Scholars Program Training Workshops, Austin, TX, 2005.

24. International Linear Algebra Society Conference, Regina, Canada, 2005.

25. Brualdi-fest, Madison, WI, 2005.

26. First Annual Graduate Student Combinatorics Conference, Minneapolis, MN, 2005.

27. AMS Central Section Conference, Madison, WI, 2002.

28. AMS/MAA Joint Meetings, San Diego, CA, 2002.

PROFESSIONAL ASSOCIATIONS

1. American Mathematical Society

2. Mathematical Association of America

3. International Linear Algebra Society

4. Phi Beta Kappa Society