

Michael Joseph Ferrara

Department of Theoretical and Applied Mathematics
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Research Interests:

Graph Theory, Combinatorics, Extremal Problems, Cycle Structures in Graphs, Potentially H -graphic Sequences.

Education:

August, 2005 *Emory University, Atlanta, GA*
PhD. In Mathematics
Thesis Title: The Degree Stripping Method for Potentially H -graphic sequences.
Thesis Advisor: Ronald J. Gould.

May, 2000 *Stevens Institute of Technology, Hoboken, NJ*
B.S. in Mathematics (minor: Music)
High Honors w/ Thesis

Professional Experience:

August 2007-Present **Assistant Professor**
The University of Akron, Akron OH
Department of Theoretical and Applied Mathematics

August 2005-August 2007 **Visiting Assistant Professor**
University of Colorado at Denver, Denver CO
Department of Mathematical Sciences
Conducted research and taught graduate and undergraduate classes including graph theory, differential equations and statistics.

March 2006-July 2007 **Instructional and Development Teams**
Rocky Mountain Middle School Math and Science Partnership
Developed and taught, along with two other team members, a discrete mathematics course for in-service middle school teachers as part of an NSF-funded project. Program goals included increasing content knowledge of classroom teachers as a means of improving student performance, as well as helping teachers achieve “highly qualified” status per federal No Child Left Behind standards.

September 2001
-August 2005 **Teaching Associate**
Emory University, Atlanta GA
Instructor for Math 109, Games and Graphs and Math 115-116, Calculus for the Life Sciences.

Summer 2002-2004 **Emory PREP Program Instructor**

Developed and taught a general mathematics course for college-bound, gifted minority students from the Atlanta area.

July-August 2000

Adjunct Professor

Department of Mathematical Sciences
Stevens Institute of Technology, Hoboken NJ
Instructor for MA 112, Matrix Algebra w/ Computers.

Awards:

2001-2005

Woodruff Fellowship, Emory University
Teaching Associateship, Emory University

2005

Marshall Hall Award for Excellence in Graduate Teaching, Department of Mathematics and Computer Science, Emory University

Publications:

1. M. Ferrara, R. Gould, G. Tansey, T. Whalen, On H-Immersion, *J. Graph Theory* **57** (2008), 245-254.
2. M. Ferrara, R. Gould, S. Hartke, The Structure and Existence of 2-Factors in Iterated Line Graphs, *Discuss. Math. Graph Theory* **27**, no. 3, (2007), 507-526.
3. A. Busch, M. Ferrara, N. Kahl, Generalizing D-Graphs, *Discrete Applied Math.* **155** (2007), 2487-2495
4. M. Ferrara, R. Gould, J. Schmitt, Graphic Sequences with a Realization Containing a Friendship Graph, *ARS Combinatoria* **85** (2007), 161-171.
5. M. Ferrara, Graphic Sequences with a Realization Containing a Union of Arbitrary Cliques, *Graphs Comb.* **23** (2007) 263-269.
6. M. Ferrara, R. Gould, G. Tansey, T. Whalen, On H-Linked Graphs, *Graphs. Comb.* **22** (2006) 217-224.
7. M. Ferrara, Y. Kohayakawa and V. Rodl, Distance Graphs on the Integers, *Combinatorics, Probability and Computing* **14** (2005), 107-131.
8. M. Ferrara, R. Gould and C. Suffel, Spanning Tree Edge Densities, *Congr. Numerantium* **154** (2002), 155-163.

Accepted Publications:

9. M. Ferrara, R. Gould, J. Schmitt, *Using Edge-Swaps to Prove the Erdos-Jacobson-Lehel Conjecture*, to appear in Bulletin of the ICA.
10. G. Chen, M. Ferrara, R. Gould, J. Schmitt, *Graphic Sequences with a Realization Containing a Complete Multipartite Subgraph*, to appear in Discrete Math.
11. M. Ferrara, J. Gilbert, M. Jacobson, T. Whalen, *Irregularity Strength of Digraphs*, to appear in Discrete Math.
12. R. Faudree, M. Ferrara, R. Gould, M. Jacobson, *tK_p -saturated Graphs of Minimum Size*, to appear in Discrete Math.

Submitted Publications:

13. M. Ferrara, R. Gould, G. Tansey, T. Whalen, *Degree-Sum Conditions for Bipartite Graphs to Contain Disjoint Hamiltonian Cycles*, submitted.
14. M. Ferrara, J. Schmitt, *A Lower Bound for Potentially H-Graphic Sequences*, submitted.
15. M. Ferrara, M. Jacobson, J. Schmitt, M. Siggers, *Potentially H-bigraphic Sequences*, submitted.
16. M. Ferrara, A. Harris, M. Jacobson, *Hamiltonian Cycles Avoiding Sets of Edges in a Graph*, submitted.
17. M. Ferrara, E. Gethner, C. Lee, P. Wallis, *The Irregular Chromatic Number of Paths and Cycles*, submitted.

18. M. Ferrara, A. Harris, M. Jacobson, *Cycle Lengths in Hamiltonian Graphs with a Pair of Vertices Having Large Degree Sum*, submitted.

Teaching:

The University of Akron

- Math 3450:636 – Advanced Combinatorics and Graph Theory, *Spring 2008*.
Math 3450:208 – Introduction to Discrete Mathematics, *Fall 2007*.

University of Colorado at Denver

- Math 4409 – Combinatorics, *Spring 2007*
Math 3000 – Introduction to Abstract Math, *Spring 2007*
Math 7023 – Topics in Extremal Graph Theory, *Fall 2006*
Math 2830 – Introductory Statistics, *Fall 2006*
Math 5008 – Discrete Mathematics for Middle School Teachers, *Summer 2006, Summer 2007*
Math 3200 – Differential Equations, *Spring 2006*
Math 3195 – Differential Equations and Linear Algebra, *Fall 2005, Spring 2006*
Math 4409 – Graph Theory, *Fall 2005*

Emory University

- Math 116 – Calculus with Life Science Applications II, *Spring 2003, Spring 2004*
Math 115 – Calculus with Life Science Applications I, *Fall 2002, Fall 2003*
Math 109 – Games and Graphs, *Fall 2001, Spring 2002*
Emory PREP program, *Summer(s) 2002-2005*

Stevens Institute of Technology

- MA 112 – Matrix Algebra with Computers, *Summer 2000*

Professional Service:

Referee for *J. of Graph Theory*, *Discrete Math*, *JAMC*, *Utilitas Math.*, *JCMCC*, *AKCE Journal of Graphs and Comb*, *JCISS*.

Reviewer for *Math Reviews*.

The University of Akron

- Undergraduate Committee, Department of Theoretical and Applied Mathematics, *Academic Year 2007-2008*
- Search Committee, Department of Theoretical and Applied Mathematics, *Academic Year 2007-2008*.
- Colloquium Committee, Department of Theoretical and Applied Mathematics, *Academic Year 2007-2008*.
- Member, Committee on Student Undergraduate Members (CONSTUM), Ohio Section of the MAA. *Fall 2007 – present*.

The University of Colorado at Denver

- Organizer, University of Colorado at Denver Classroom Technology Lecture Series, *Fall 2006*
- Undergraduate Committee, University of Colorado at Denver. *Academic year 2006-2007*.
- Co-Organizer and Co-Founder, University of Colorado at Denver Graduate Combinatorics Seminar. *Fall 2006*
- Course Captain, Math 2830 (Introductory Statistics). *Fall 2006*

Emory University

- Co-Organizer, Graduate Student Seminar, Emory University Department of Math and Computer Science. *Fall 2001-Spring 2002; Fall 2003-Spring 2005*

Undergraduate Research Projects Directed:

1. *Irregular Chromatic Numbers of Graphs*. Christine Lee. *Fall 2006-Spring 2007*
2. *Spacing Numbers of Trees*. Casey Moffat, Zachary Richards, Jennifer Ward and Robert Torres. *Spring 2006*

Masters Projects Directed:

1. *Some Irregular Graph Theory*. Jennifer Zakotnik. The University of Colorado Denver. *Spring 2007*

Doctoral Committees:

1. John Weigand, University of Colorado at Denver.
2. Jesse Gilbert, University of Colorado at Denver.

Research Talks Given:

1. *Two Variants of the Turan Problem*, Colloquium, Kent State University, April 10, 2008 (Invited).
2. *A Lower Bound for Potentially H-graphic Sequences*, AMS Central Section Meeting, Indiana University, April 6, 2008 (Invited).
3. *Hamiltonian Cycles that Avoid Sets of Edges in a Graph*, Mathfest. August 5, 2007.
4. *Debruijn Sequences and Irregular Colorings*. REU Seminar, The University of Akron, June 19, 2007.
5. *H-avoiding Hamiltonian Cycles*, 20th Cumberland Conference, Emory University, May 17-19, 2007.
6. *Hamiltonian Cycles that Avoid Sets of Edges in a Graph*, AMS Eastern Section meeting, special session on Combinatorics and Graph Theory, Stevens Institute of Technology, April 15, 2007 (Invited).
7. *Two Variants of the Turan Problem*, Colloquium, The University of Dayton, March 22, 2007 (Invited).
8. *Some New Results on Potentially H-Graphic Sequences*. University of Illinois, Urbana-Champaign. June 21, 2006 (Invited).
9. *Irregularity Strength of Graphs and Digraphs*. Emory University. May 18, 2006.
10. *Potentially H-bigraphic Sequences*. 37th Southeastern International Conference on Combinatorics, Graph Theory and Computing. Florida Atlantic University, Boca Raton, FL. March 6-10, 2006.
11. *Potentially H-Graphic Sequences*. Rocky Mountain Algebraic Combinatorics Seminar. Colorado State University, December 2, 2005. (Invited).
12. *Degree Sequences II*. University of Colorado at Denver Discrete Mathematics Seminar. September 26, 2005.
13. *Degree Sequences I*. University of Colorado at Denver Discrete Mathematics Seminar. September 12, 2005.
14. *An Introduction to Potentially H-graphic Sequences*. Graph Theory with Altitude. University of Colorado at Denver. May 2005.
15. *Alphabet Overlap Graphs*. 36th Southeastern International Conference on Combinatorics, Graph Theory and Computing. Florida Atlantic University, Boca Raton, FL. March 7-11, 2005.
16. *An Introduction to Extremal Graph Theory*. Emory University Graduate Student Seminar. February, 2005 (Invited).
17. *On H-Immersion*. 2005 Joint Mathematics Meetings. Atlanta, GA. January 5-8, 2005.
18. *Potentially K_s^t -Graphic Sequences*. 35th Southeastern International Conference on Combinatorics, Graph Theory and Computing. Florida Atlantic University, Boca Raton, FL. March 8-12, 2004.
19. *Potentially H-Graphic Sequences*. Combinatorics Seminar, Adam Mickiewicz University, Poznan, Poland. January 26, 2004 (Invited).

20. *Spacing Numbers of Graphs*. 34th Southeastern International Conference on Combinatorics, Graph Theory and Computing. Florida Atlantic University, Boca Raton, FL. March 3-7, 2003.
21. *Spanning Tree Edge Densities*. 33rd Southeastern International Conference on Combinatorics, Graph Theory and Computing. Florida Atlantic University, Boca Raton, FL. March 4-8, 2002.
22. *Spanning Tree Edge Densities*. MAA New Jersey Section Meeting, Georgian Court College. April 8, 2000 (Invited).
23. *The Number of Spanning Trees Containing a Given Edge in a Graph*. Department Seminar, Stevens Institute of Technology. April 2000.

Education/Outreach Talks Given:

1. *It Will Make You Go...INSANE!* Greater Akron Math Educators Society, Spring Mini-Conference. March 29, 2008 (Invited).
2. *To Infinity...and Beyond*. St. Vincent-St. Mary's High School, Akron OH, February 20, 2008.
3. *Bridges, Monkeys and Maps: Graph Theory for the K-12 Classroom*, Greater Akron Math Educators Society, Fall Meeting. November 7, 2007 (Invited).

Memberships:

Mathematical Association of America
American Mathematical Society
National Council of Teachers of Mathematics