

MARTIN MALANDRO

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Education

Dartmouth College 2008
Ph.D., Mathematics. Advisor: Daniel Rockmore
Thesis title: Fast Fourier transforms for inverse semigroups

Dartmouth College 2005
A.M., Mathematics

Texas Tech University 2003
B.S., Mathematics
Minor: Computer Science

Publications

1. S. Chapman, L. Garcia-Puente, R. Garcia, M. E. Malandro, K. W. Smith. Algebraic and combinatorial aspects of sandpile monoids on directed graphs. *Submitted for publication.*
2. M. E. Malandro. Inverse semigroup spectral analysis for partially ranked data. *Submitted for publication.*
3. M. E. Malandro and B. Cory. Optimization on discrete domains using calculus (working title). *Provisionally accepted* (pending editorial revisions, to be assigned in 2013) for publication in 2013.
4. M. E. Malandro. Fast Fourier transforms for finite inverse semigroups. *Journal of Algebra* 324(2) (2010), 282–312, doi:10.1016/j.jalgebra.2009.11.031.
5. M. Malandro and D. Rockmore. Fast Fourier transforms for the rook monoid. *Transactions of the American Mathematical Society* 362(2) (2010), 1009–1045.

Grants

1. (As Co-PI) CombinaTexas 2011: A Combinatorics Conference in the South-Central United States. National Science Foundation grant **funded** in the amount of \$9,110, Nov. 23, 2010.
2. (As PI) CombinaTexas 2011: A Two-Day Conference Focusing on Algebraic Combinatorics. Grant proposal **submitted** to the National Security Agency in the amount of \$10,000, Oct. 15, 2010.

Selected Presentations

1. The mathematics of sandpiles Oct. 23, 2010
Texas Undergraduate Mathematics Conference, The University of Texas at Tyler, Tyler, TX
2. Modified Moore method techniques used in the calculus classroom Sept. 25, 2010
Friday Afternoon Club, Sam Houston State University, Huntsville, TX
3. The abelian sandpile model for directed graphs Apr. 25, 2010
CombinaTexas, Texas State University, San Marcos, TX

4. Algebraic and combinatorial aspects of the directed abelian sandpile model Apr. 9, 2010
MAA Spring Texas section meeting, Abilene Christian University, Abilene, TX
5. Inverse semigroup Fourier analysis for partially ranked data Oct. 17, 2009
AMS fall central section meeting, applicable algebraic geometry session, Waco, TX
6. Fast Fourier transforms for finite inverse semigroups Apr. 17, 2009
AGANT (algebraic geometry, algebra, and number theory) seminar, University of Texas, Arlington, TX
7. Fast Fourier transforms for finite inverse semigroups Apr. 2, 2009
Sam Houston State University colloquium, Huntsville, TX
8. Fast Fourier transforms for finite inverse semigroups Feb. 27, 2009
Texas A&M algebra seminar, College Station, TX
9. Fast Fourier transforms for the rook monoid (Poster) Feb. 21 and 22, 2008
February Fourier Talks, University of Maryland, College Park, MD
10. Fast Fourier transforms for inverse semigroups Jan. 24, 2008
Dartmouth College colloquium, Hanover, NH
11. Fast Fourier transforms for inverse semigroups Jan. 6, 2008
AMS/MAA joint meetings, San Diego, CA
12. A fast Fourier transform for the rook monoid Dec. 10, 2007
Canadian Mathematical Society winter meeting, algebraic combinatorics, representations and geometry session, London, Ontario, Canada
13. What is generalized spectral analysis? Aug. 29, 2007
Dartmouth College graduate student seminar, Hanover, NH
14. A fast Fourier transform for the rook monoid Mar. 3, 2007
AMS spring southeastern section meeting, applicable algebra session, Davidson, NC
15. An FFT on the rook monoid Feb. 22, 2007
Dartmouth College graduate student seminar, Hanover, NH
16. An introduction to FFTs May 11, 2006
Dartmouth College graduate student seminar, Hanover, NH
17. A slick proof of the prime number theorem Aug. 25, 2005
Dartmouth College graduate student seminar, Hanover, NH
18. Pathologies and counterexamples in algebra Nov. 8, 2004
Dartmouth College graduate student seminar, Hanover, NH
19. Twin primes and the Chinese remainder theorem Mar. 3, 2004
Dartmouth College number theory seminar, Hanover, NH

Professional Experience

- Assistant Professor of Mathematics, Sam Houston State University Fall 2008 – present
Teaching experience:

- Discrete Mathematics (Math 295) Spring 2011
- Calculus II (Math 143) Spring 2011
- College Mathematics (Math 164), two sections Fall 2010
- Calculus I (Math 142) Fall 2010
- Special Topics: Resolving Paradoxes in the Theory of Voting (Math 470) Fall 2010
- Linear Algebra (Math 377) Spring 2010
- Calculus II (Math 143) Spring 2010
- College Mathematics (Math 164), two sections Fall 2009
- Calculus I (Math 142) Fall 2009
- College Mathematics (Math 164), two sections Spring 2009
- Calculus I (Math 142) Spring 2009
- College Mathematics (Math 164), two sections Fall 2008
- Calculus I (Math 142) Fall 2008

Full responsibility for all courses.

- Mathematics Graduate Student Instructor and Teaching Assistant, Dartmouth College 2003–2008

Teaching experience:

- Linear Algebra, Honors (Math 24) (Teaching Assistant) Winter 2008
- Introduction to Calculus (Math 3) (Graduate Student Instructor) Fall 2006
- Differential Calculus (Math 1) (Graduate Student Instructor) Fall 2005
- A Matter of Time (Math 5) (Teaching Assistant) Winter 2005
- Multivariable Calculus (Math 11) (Teaching Assistant) Fall 2004
- Calculus II (Math 8) (Teaching Assistant) Spring 2004
- Introductory Calculus (Math 3) (Teaching Assistant) Fall 2003

As Graduate Student Instructor: Full responsibility for courses.

As Teaching Assistant for Linear Algebra: Graded mathematical writing assignments, held office hours, assisted students with proofs and proof-writing techniques, gave substitute lectures.

As Teaching Assistant for other courses: Led three tutorial/review sessions per week, assisted students with homework, graded exams.

- Teaching Assistant, Talent Identification Program, Duke University Summer 2002 and 2003

- Elementary Number Theory Summer 2003
- Mathematical Problem Solving Summer 2003
- High School Algebra II Summer 2002
- High School Geometry Summer 2002

Assisted gifted and talented middle-school and high-school students with assignments during daily classes. Prepared for and led 1-hour evening enrichment sessions five nights per week.

- Software Intern, National Instruments Summer 2000 and 2001

- Summer 2001: Designed and implemented (in LabView, a visual programming language developed by National Instruments) an internal test suite for LabView's image processing functions.
- Summer 2000: Designed and implemented (in C++) a graphical user interface for a motion control device.

Academic and Professional Service

- Math 141 (Precalculus) course design committee member Fall 2008 – present
Mathematics department, Sam Houston State University
- Undergraduate advisor Spring 2009 – present
Mathematics department, Sam Houston State University. I provide advising services to undergraduate mathematics majors.
- CombinaTexas 2011 conference organizing committee Spring 2010 – Spring 2011
- Hiring committee Fall 2009 – Spring 2010
Mathematics department, Sam Houston State University
- Undergraduate research poster judge Jan. 15, 2010
AMS/MAA joint meetings, San Francisco, CA
- Legacy of R. L. Moore booth volunteer Jan. 14, 2010
AMS/MAA joint meetings, San Francisco, CA
- Book chapter review for Soo Tan's Calculus book Apr. 2009
Chapter: Applications of the derivative
- Undergraduate research poster judge Jan. 7, 2009
AMS/MAA joint meetings, Washington, D. C.

Conferences and Professional Development

- Algebra and combinatorics seminar Fall 2008 – present
Sam Houston State University, Huntsville, TX. Participant.
- Texas Undergraduate Mathematics Conference Oct. 23, 2010
University of Texas at Tyler, Tyler, TX. Also attended Texas NExT events.
- Second annual Southeast Texas Discrete Math and its Applications Workshop Oct. 16, 2010
Sam Houston State University, Huntsville, TX. Participated.
- Sam Houston State University CHSS Annual Teaching Conference Aug. 19, 2010
College of Humanities and Social Sciences, Huntsville, TX. Participated.
- CombinaTexas, Texas State University, San Marcos, TX. Apr. 24–25, 2010
- Texas MAA spring conference, Abilene, TX Apr. 8–10, 2010
Also attended Texas NExT events.
- 50 ways to leave your lectern, Huntsville, TX Feb. 26, 2010
Teaching workshop led by Dr. Constance Staley. Participated.
- AMS/MAA joint meetings, San Francisco, CA Jan. 13–16, 2010
- Texas Undergraduate Mathematics Conference Nov. 6–7, 2009
Sam Houston State University, Huntsville, TX. Also attended Texas NExT events.
- AMS fall central section meeting, Waco, TX Oct. 16–18, 2009

- Southeast Texas Discrete Math and Applications workshop Oct. 10, 2009
Texas A&M Galveston, Galveston, TX. Participated.
- Sam Houston State University CHSS Annual Teaching Conference Aug. 20, 2009
College of Humanities and Social Sciences, Huntsville, TX. Participated.
- Mathfest, Portland, OR Aug. 4–9, 2009
Also attended Project NExT events.
- Legacy of R. L. Moore conference, Austin, TX July 15–18, 2009
- CombinaTexas, University of Houston, Houston, TX Apr. 25–26, 2009
- Texas MAA spring conference, Denton, TX Apr. 16–18, 2009
Also attended Texas NExT events.
- AMS/MAA joint meetings, Washington, D. C. Jan. 13–16, 2009
Also attended Project NExT events.
- Texas Undergraduate Mathematics Conference Sept. 26–27, 2008
Sam Houston State University, Huntsville, TX. Also attended Texas NExT events.
- Mathfest, Madison, WI Aug. 1–4, 2008
Also attended Project NExT events and The Geometry of Voting (MAA minicourse organized by Don Saari).
- February Fourier Talks, University of Maryland, College Park, MD Feb. 21–22, 2008
- AMS/MAA joint meetings, San Diego, CA Jan. 6–9, 2008
- Canadian Mathematical Society winter meeting, London, Ontario, Canada Dec. 8–10, 2007
- AMS spring southeastern section meeting, Davidson, NC Mar. 3–4, 2007
- Overcoming Stereotype Threat in the Classroom, Dartmouth College Dec. 7, 2006
Presentation and discussion with Valerie Purdie-Vaughns. Attended.
- AMS/MAA joint meetings, San Antonio, TX Jan. 10–15, 2006
Also attended Modeling and Simulation of Biological Networks (AMS short course) and Fair Division (MAA minicourse organized by Steven J. Brams).
- Dartmouth College mathematics department teaching seminar Summer 2005
Participated in an intensive 10-week seminar with three other graduate students. Discussed readings on different theories of teaching and ways of learning. Conducted two week-long workshops for high school students. Created syllabi and developed lectures and activities to teach students propositional logic, elementary number theory, and cryptography.

Honors and Awards

- GAANN award, Dartmouth College Sept. 2006 – Sept. 2007
(Graduate Assistance in Areas of National Need)
- Dartmouth College Graduate Fellowship Sept. 2003 – June 2008
- Texas Tech University Fall 1999 – Spring 2003
– Presidential Scholarship

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| – National Merit Scholarship | Fall 1999 – Spring 2003 |
| – Alexander Scholarship | Fall 1999 – Spring 2000 |

Additional Skills

- Mathematical software: Sage (an open-source computer algebra system), R, Mathematica, Maple
- Programming languages: C++, Python
- Markup languages: L^AT_EX, HTML
- Other software and utilities: WebWork (a web-based homework system)
- Languages: Reading knowledge of mathematical French. Some knowledge of Spanish.

Affiliations

- MAA (Mathematical Association of America)
- MAA Project NExT (Texas section) Sept. 2008 – Sept. 2010
- MAA Project NExT (national section, Red '08 dot) July 2008 – Aug. 2009

References

Available upon request.