

MARTIN E. MALANDRO

Last updated Aug. 2017

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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. A. M. Broussard, M. E. Malandro, and A. Serreyn. Optimizing the Video Game Multi-Jump: Player Strategy, AI, and Level Design. *The American Mathematical Monthly* 123(10) (2016), 1013–1032.
2. M. E. Malandro. Fourier inversion for finite inverse semigroups. *SIAM Journal on Discrete Mathematics* 29(1) (2015), 269–296, doi: 10.1137/130932028.
3. S. Chapman, R. Garcia, L. D. García-Puente, M. E. Malandro, K. W. Smith. Algebraic and combinatorial aspects of sandpile monoids on directed graphs. *Journal of Combinatorial Theory Series A* 120(1) (2013), 245–265, doi:10.1016/j.jcta.2012.08.001.
4. M. E. Malandro. Inverse semigroup spectral analysis for partially ranked data. *Applied and Computational Harmonic Analysis* 35(1) (2013), 16–38, doi:10.1016/j.acha.2012.07.009.
5. M. E. Malandro and B. Cory. Optimization on discrete domains using calculus. *The Mathematics Teacher* 106(5) (Dec. 2012/Jan. 2013), 394–397.
6. 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.
7. 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 PI) CombinaTexas 2011: A Two-Day Conference Focusing on Algebraic Combinatorics. Grant **funded** by the National Security Agency in the amount of \$10,000, Feb. 16, 2011.
2. (As Co-PI) CombinaTexas 2011: A Combinatorics Conference in the South-Central United States. Grant **funded** by the National Science Foundation in the amount of \$9,110, Nov. 23, 2010.

Selected Presentations

1. Enumeration of partial difference sets in $\mathbb{Z}_{2^n} \times \mathbb{Z}_{2^n}$ April 10, 2015
Texas A&M algebra and combinatorics seminar, College Station, TX

2. An introduction to sandpile monoids June 17, 2014
UT Tyler REU seminar, Tyler, TX
3. Enumeration of finite inverse semigroups Apr. 20, 2013
CombinaTexas 2013. University of Houston Downtown, Houston, TX
4. Enumeration of finite inverse semigroups Oct. 14, 2012
AMS Fall Southeastern section meeting, Tulane University, New Orleans, LA
5. Maximal subgroups of sandpile monoids Apr. 27, 2012
NSF Center for Research on Complex Networks, Texas Southern University, Houston, TX
6. Lecture series: Analytic combinatorics I, II, III Aug. 30, Sept. 6, and Sept. 13, 2011
Sam Houston State University algebra and combinatorics seminar
7. Maximal subgroups of sandpile monoids Apr. 30, 2011
AMS spring western section meeting, Las Vegas, NV
8. Maximal subgroups of sandpile monoids Mar. 28, 2011
Stephen F. Austin State University mathematics department colloquium, Nacogdoches, TX
9. The abelian sandpile model for directed graphs Apr. 25, 2010
CombinaTexas 2010, Texas State University, San Marcos, TX
10. Inverse semigroup Fourier analysis for partially ranked data Oct. 17, 2009
AMS fall central section meeting, applicable algebraic geometry session, Waco, TX
11. Fast Fourier transforms for finite inverse semigroups Apr. 17, 2009
Algebraic geometry, algebra, and number theory seminar, University of Texas, Arlington, TX
12. Fast Fourier transforms for finite inverse semigroups Feb. 27, 2009
Texas A&M algebra seminar, College Station, TX
13. Fast Fourier transforms for the rook monoid (Poster) Feb. 21 and 22, 2008
February Fourier Talks, University of Maryland, College Park, MD
14. Fast Fourier transforms for inverse semigroups Jan. 24, 2008
Dartmouth College colloquium, Hanover, NH
15. Fast Fourier transforms for inverse semigroups Jan. 6, 2008
AMS/MAA joint meetings, San Diego, CA
16. 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
17. A fast Fourier transform for the rook monoid Mar. 3, 2007
AMS spring southeastern section meeting, applicable algebra session, Davidson, NC

Professional Experience

- Associate Professor of Mathematics, Sam Houston State University Fall 2014 – present
Teaching experience:

- Abstract Algebra (Math 4377) Spring 2017
- Graduate Discrete Mathematics (Math 5397) Spring 2017
- Math for Managerial Decision Making (Math 1324) Fall 2016
- Elementary Functions (Math 1410), two sections Fall 2016
- Math for Managerial Decision Making (Math 1324) Spring 2016
- Linear Algebra (Math 3377), two sections Spring 2016
- Elementary Functions (Math 1410), two sections Fall 2015
- Special Topics: Mathematical Programming (in **Sage**) (Math 4370) Fall 2015
- Linear Algebra (Math 3377) Spring 2015
- Graduate Abstract Algebra II (Math 6336) Spring 2015
- Calculus II (Math 1430), two sections Fall 2014
- Graduate Abstract Algebra I (Math 6335) Fall 2014

Full responsibility for all courses.

- Assistant Professor of Mathematics, Sam Houston State University Fall 2008 – Spring 2014

Teaching experience:

- Calculus II (Math 1430) Spring 2014
- Special Topics: Representations of Groups and Algebras (Math 5360) Spring 2014
- Calculus I (Math 1420), two sections Fall 2013
- Linear Algebra (Math 3377) Fall 2013
- Elementary Functions (Math 1410) Spring 2013
- Graduate Discrete Mathematics (Math 5397) Spring 2013
- Special Topics: Undergraduate Research (Math 4370) Spring 2013
- Math for Managerial Decision Making (Math 1324), two sections Fall 2012
- Calculus I (Math 1420) Fall 2012
- Abstract Algebra (Math 4377) Spring 2012
- Plane Trigonometry (Math 1316), two sections Spring 2012
- Special Topics: Elementary Number Theory (Math 4370) Fall 2011
- Calculus I (Math 1420), two sections Fall 2011
- 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.

Selected Academic and Professional Service

- Sage server administrator Jan. 2013 – present
Mathematics department, Sam Houston State University
- Food pantry advisory board member Aug. 2012 – present
Sam Houston State University
- Math area course scheduler, Sam Houston State University Fall 2014 – present
I aggregate scheduling requests and create the long-semester course schedules for SHSU's 16 tenured and tenure-track math area faculty members.
- Graduate program committee member Fall 2011 – present
Mathematics department, Sam Houston State University
- COSET Undergraduate Research Awards committee chair Fall 2014 – present
College of Sciences, Sam Houston State University
- SamREU (NSF-funded REU) project advisor Summer 2016
Advised three undergraduate students from around the country and one graduate student from SHSU on research in computational algebra.
- Undergraduate advisor Spring 2009 – Jan. 2015
Mathematics department, Sam Houston State University. I provided course selection advising services to undergraduate mathematics majors.
- Graduate student teaching seminar leader Fall 2014
Mathematics department, Sam Houston State University
- COSET Undergraduate Research Awards committee member Fall 2013 – Spring 2014
College of Sciences, Sam Houston State University
- Calculus placement committee member Aug. 2012 – Summer 2014
Mathematics department, Sam Houston State University
- Honors Committee Spring 2012 – Spring 2014
Mathematics department, Sam Houston State University
- CombinaTexas 2012 conference organizing committee Spring 2011 – Spring 2012
- CombinaTexas 2011 conference organizing committee Spring 2010 – Spring 2011
- Elementary Functions (a pre-calculus course) course design committee member Fall 2008 – Fall 2011
Mathematics department, Sam Houston State University

Honors and Awards

- College of Sciences Faculty Excellence in Teaching Award 2014
Sam Houston State University. Awarded to one tenure-track or tenured faculty member in the college each year since 2013.

- GAANN award, Dartmouth College
(Graduate Assistance in Areas of National Need) Sept. 2006 – Sept. 2007
- Dartmouth College Graduate Fellowship Sept. 2003 – June 2008
- Texas Tech University
 - Presidential Scholarship Fall 1999 – Spring 2003
 - 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: Python, C++
- Markup languages: \LaTeX , HTML
- Other software and utilities: WebWork (a web-based homework system)
- Languages: Reading knowledge of mathematical French. Some knowledge of Spanish.