

Madeline Locus Dawsey

CONTACT INFORMATION

Emory University
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ACADEMIC INTERESTS

partition functions, modular forms, Chebotarev density, moonshine

EDUCATION

University of Georgia - Athens, GA

- B.S. Mathematics, *Summa Cum Laude* (2011 - 2014)
- A.B. Italian, Area of Emphasis: Italian Studies, *Summa Cum Laude* (2012 - 2014)
- Overall GPA: 3.93

Siena Italian Studies - Siena, Italy

- Study abroad program (June 2013)

Emory University - Atlanta, GA

Fourth year Ph.D. student with advisor Dr. Ken Ono

PUBLICATIONS

1. C. Frechette and M. Locus. Combinatorial Properties of Rogers-Ramanujan-Type Identities Arising from Hall-Littlewood Polynomials. *Ann. Comb.*, **20**: 2 (2016) pp. 345-360.
2. M. Locus and I. Wagner. Congruences for Powers of the Partition Function. *Ann. Comb.*, **21**: 1 (2017) pp. 83-93.
3. E. Alwaise, R. Dicks, J. Friedman, L. Gu, Z. Harner, H. Larson, M. Locus, I. Wagner, and J. Weinstock. Shifted distinct-part partition identities in arithmetic progressions. *Ann. Comb.*, **21**: 4 (2017) pp. 479-494.
4. M. Locus. Conjugacy growth series for finitary wreath products. *Res. Number Theory*, **3**: 7 (2017).
M. Locus. Erratum to: Conjugacy growth series for finitary wreath products. *Res. Number Theory*, **3**: 15 (2017).
5. M. L. Dawsey. A new formula for Chebotarev densities. *Res. Number Theory*, **3**: 27 (2017).
6. M. L. Dawsey and K. Ono. CM Evaluations of the Goswami-Sun Series. *Proceedings of Elliptic Integrals, Elliptic Functions and Modular Forms in Quantum Field Theory*. Zeuthen, Austria (2017). Accepted for publication.
7. M. L. Dawsey and R. Masri. Effective bounds for the Andrews spt-function. *Forum Math.* Accepted for Publication.
8. M. L. Dawsey and K. Ono. Higher width moonshine. Submitted.
9. K. Ono, M. L. Dawsey, A. Wilson, S. Mesihovic, F. Muir, S. Ono, J. Howell, and L. Rolén. A case study of elite breaststrokers using inertial measurement units. Submitted
10. M. L. Dawsey and S. Jin. Asymptotically regular moonshine. In progress.

TEACHING EXPERIENCE	<p>Teaching Assistant, Math 116 Calculus II for Life Sciences (two sections), Fall 2015.</p> <p>Emory University Instructor, Math 111 Calculus I, Fall 2016, Summer 2017, Fall 2017, and Spring 2018.</p> <p>Emory University Instructor, Math 112 Calculus II, Spring 2017 and Spring 2018.</p> <p>Emory University Instructor, Math 211 Multivariable Calculus, Fall 2018.</p>
QUALIFIED TO TEACH	<p>Calculus I, Calculus II, Multivariable Calculus, Ordinary Differential Equations, Foundations of Mathematics, Linear Algebra, Abstract Algebra, Real Analysis, Complex Analysis, Number Theory, Combinatorics, Cryptography</p>
CONFERENCE PRESENTATIONS	<p>January 2015, <i>Rogers-Ramanujan Series Arising from Hall-Littlewood Polynomials</i>, AMS-MAA Joint Mathematics Meetings Poster Session, San Antonio, Texas.</p> <p>September 2017, <i>A New Formula for Chebotarev Densities</i>, Palmetto Number Theory Series, Knoxville, Tennessee.</p> <p>December 2017, <i>A New Formula for Chebotarev Densities</i>, International Conference on Number Theory, Kumbakonam, India.</p> <p>March 2018, <i>Effective Bounds for Andrews' Smallest Parts Function</i>, 32nd Automorphic Forms Workshop, Boston, Massachusetts.</p> <p>June 2018, <i>Effective Bounds for Andrews' Smallest Parts Function</i>, Combinatory Analysis Conference, State College, Pennsylvania.</p> <p>July 2018, <i>A New Formula for Chebotarev Densities</i>, Canadian Number Theory Association XV, Quebec, Canada.</p> <p>November 2018, <i>Higher Width Moonshine</i>, New developments in the theory of modular forms over function fields, Pisa, Italy.</p> <p>January 2019, <i>The Andrews Smallest Parts Partition Function</i>, AMS-MAA Joint Mathematics Meetings Invited Paper Session on "Modular Forms: Aesthetics and Applications," Baltimore, Maryland.</p> <p>January 2019, <i>CM Evaluations of the Goswami-Sun Series</i>, AMS-MAA Joint Mathematics Meetings Special Session on "Partition Theory and Related Topics," Baltimore, Maryland.</p> <p>March 2019, <i>Moonshine for Finite Groups</i>, Low dimensional topology and number theory XI, Osaka, Japan.</p> <p>March 2019, <i>Inequalities satisfied by the Andrews spt-function</i>, AMS Sectional Meeting Special Session on "Experimental Mathematics in Number Theory, Analysis, and Combinatorics," Auburn, Alabama.</p> <p>March 2019, <i>Moonshine for finite groups</i>, AMS Sectional Meeting Special Session on "Recent Advances and Applications of Modular Forms," Honolulu, Hawaii.</p>
COLLOQUIA AND SEMINARS	<p>April 2015, <i>Combinatorial Properties of Generalized Rogers-Ramanujan Identities</i>, University of Georgia Number Theory Seminar, Athens, Georgia.</p> <p>March 2017, <i>Conjugacy Growth Series for Wreath Products of Finitary Permutation Groups</i>, Texas A&M University Number Theory Seminar, College Station, Texas.</p> <p>March 2017, <i>Conjugacy Growth Series for Wreath Products of Finitary Permutation Groups</i>, University of Pennsylvania Combinatorics, Algebra, and Geometry Seminar, Philadelphia, Pennsylvania.</p>

March 2018, *Densities of subsets of prime numbers*, Baylor University Mathematics Colloquium, Waco, Texas.

September 2018, *Moonshine for finite groups*, Emory University Algebra Seminar, Atlanta, Georgia.

October 2018, *Moonshine for finite groups*, University of Tennessee Algebra Seminar, Knoxville, Tennessee.

November 2018, *Moonshine for finite groups*, Baylor University Mathematics Colloquium, Waco, Texas.

November 2018, *Densities of Subsets of Prime Numbers*, University of Texas at Tyler Mathematics Seminar, Tyler, Texas.

December 2018, *Densities of Subsets of Prime Numbers*, Texas A&M University Number Theory Seminar, College Station, Texas.

February 2019, *Adding and Counting: How Hard Can It Be?*, St. Edward's University Mathematics Colloquium, Austin, Texas.

February 2019, *Moonshine for Finite Groups*, University of Texas at Tyler Mathematics Seminar, Tyler, Texas.

February 2019, *Adding and Counting: How Hard Can It Be?*, University of Texas at Tyler Math Club, Tyler Texas.

RESEARCH
ADVISING

Spring 2019: Emory University undergraduate student Sven Mesihovic. Joint advising with Ken Ono. Applied mathematics research project using inertial measurement units to detect inefficiencies in breaststroke swimming among elite swimmers.

Summer 2018: Emory University Number Theory Research Experience for Undergraduates. Applied mathematics research project using inertial measurement units to analyze underwater breaststroke pullouts among elite swimmers.

PROFESSIONAL
SERVICE

Referee work: Trans. Amer. Math. Soc., Res. Number Theory, Res. Math. Sci., the Ramanujan Journal, Involve.

Leader/Moderator/Organizer of the student advisory panel for basic sciences at the Emory teaching assistant preparatory workshop, 2018.

Micro-Teaching Facilitator for the Emory teaching assistant preparatory workshop, 2018.

Lecturer for Emory's STEM Pathways program, 2018.

AWARDS

Marhsall Hall, Jr. Teaching Award, Emory University, 2018-2019.

George W. Woodruff Fellowship, Emory University, 2015-present.

SEC Boyd McWhorter Scholar-Athlete of the Year, Southeastern Conference, 2015.

NCAA Postgraduate Scholarship Award, National Collegiate Athletic Association, 2015.

AT&T Student Leadership Award, University of Georgia, 2014.

Joel Eaves Scholar-Athlete Award, University of Georgia Athletic Department, 2013.

Hollingsworth Award, University of Georgia Math Department, 2013.

OTHER ACTIVITIES

Coach for the Emory Club Swim Team, 2016-2017, 2017-2018, and part of 2019.

Participated with UGA alumni in volunteer work for Homestretch, August 2018.

Updated: February 20th, 2019.