Jim L. Brown

Work Address:
Department of Mathematical Sciences
Clemson University
Clemson, SC 29634
864-656-2331
jimlb@g.clemson.edu
http://www.ces.clemson.edu/∼jimlb

ACADEMIC POSITIONS

2017 -	**Professor,** Clemson University, Clemson, SC.
2012 - 2017	**Associate Professor,** Clemson University, Clemson, SC.
2015-2016	**Gorenstein Visiting Associate Professor of Mathematics,** City University of New York - Queens College, Queens, NY.
2008-2012	**Assistant Professor,** Clemson University, Clemson, SC.
2007-2008	**Olga Taussky - John Todd Instructor,** California Institute of Technology, Pasadena, CA.
2005-2007	**VIGRE Arnold Ross Assistant Professor,** The Ohio State University, Columbus, OH.

EDUCATION

1999-2005	**University of Michigan**, Ann Arbor, Michigan. Ph.D. in Mathematics, July 2005. Dissertation: *Saito-Kurokawa Lifts, L-Values for* GL(2)*, and Congruences Between Siegel Modular forms* Advisor: Prof. Christopher Skinner
1995-1999	**Michigan State University**, East Lansing, Michigan. B.S. with High Honors in Mathematics, December, 1998.

CITIZENSHIP

United States of America.

RESEARCH

Current Interests Algebraic number theory, applications of algebraic geometry and number theory to coding theory, automorphic forms, Galois representations, Iwasawa theory

HONORS AND AWARDS

2013 **Mathematical Sciences Faculty Teaching Award**
Clemson University, Clemson, SC.

2004-2005 **Graduate Student Instructor of the Year**
University of Michigan, Ann Arbor, MI.

2000-2004 **VIGRE Fellowship,** University of Michigan, Ann Arbor, MI.

RESEARCH PAPERS

1. J. Brown and H. Li, *Congruence primes for automorphic forms on symplectic groups*, in preparation.

2. J. Brown, *Pullbacks of Eisenstein series on* $\mathrm{U}(3,3)$ *and congruence primes for Siegel modular forms*, preprint, 44 pages.

3. J. Brown and K. Klosin, *Congruence primes for automorphic forms on unitary groups and applications to the arithmetic of Ikeda lifts*, Kyoto J. Math., to appear , 37 pages, 2017.

4. J. Brown and K. Klosin, *On the action of the* U_p *operator on Siegel modular forms*, Rama. J., 19 pages, 2016, https://doi.org/10.1007/s11139-016-9833-x.

5. J. Brown, D. Heras, K. James, R. Keaton, A. Qian, *Amicable pairs and aliquot cycles for elliptic curves over number fields*, Rocky Mountain Math. J., **46**(6), 1853-1866, 2016.

6. J. Brown, R. Cass, K. James, R. Keaton, S. Parenti, D. Shankman, *Counting tamely ramified extensions of local fields up to isomorphism*, Integers, #A53, **16**, 1-12, 2016.

7. J. Brown and D. Zantout, *Mixed level Saito-Kurokawa lifts*, Rama. J., **39**, 247-257, 2016.

8. M. Agarwal and J. Brown, *Saito-Kurokawa lifts of odd square-free level*, Kyoto J. Math, **55**(3), 641-662, 2015.

9. J. Brown and R. Keaton, *Congruence Primes for Ikeda Lifts and the Ikeda ideal*, Pacific J. Math, **274**(1), 27-52, 2015.

10. J. Brown, A. Hasmani, L. Hiltner, A. Kraft, D. Scofield, K. Wash, *Classifying extensions of the field of formal Laurent series over* $\mathbb{F}_p$, Rocky Mountain Math. J., **45**(1), 115-130, 2015.

11. J. Brown, R. Cass, R. Keaton, S. Parenti, D. Shankman, *Degree 14 extensions of* $\mathbb{Q}_7$, Int. J. of Pure and Appl. Math., **100**(2), 337-345, 2015.

12. M. Agarwal and J. Brown, *On the Bloch-Kato conjecture for elliptic modular forms of square-free level*, Math. Z., **276**(3), 889-924, 2014.

13. J. Brown and A. Pitale, *Special values of L-functions for Saito-Kurokawa lifts with square-free level*, Math. Proc. Cambr. Phil. Soc., **155**(2), 237-255, 2013.

14. J. Brown and R. Keaton, *Level stripping for Siegel modular forms with reducible Galois representations*, J. Number Theory, **133 (5)**, 1492-1501, 2013.

15. N. Amersi, J. Beyerl, J. Brown, A. Proffer, L. Rolen, *Pullbacks of Siegel Eisenstein series and associated critical L-values*, Rama. J., **27**(2), 151-162, 2012.

16. J. Brown, *On the cuspidality of pullbacks of Siegel Eisenstein series to* $\mathrm{Sp}(2m) \times \mathrm{Sp}(2n)$, J. Number Theory, **131**, 106-119, 2011.

17. J. Brown, *On the cuspidality of pullbacks of Siegel Eisenstein series and applications to the Bloch-Kato conjecture*, Int. Math. Res. Not., **7**, 1706-1756, 2011.

18. J. Brown, *Special Values of L-functions on* $\mathrm{GSp}_4 \times \mathrm{GL}_2$ *and the Non-Vanishing of Selmer Groups*, Int. J. Number Theory, **6**(8), 1901-1926, 2010.

19. J. Brown, *On the congruence primes of Saito-Kurokawa lifts of odd square-free level*, Math. Res. Lett., **17**(5), 977-991, 2010.

20. J. Brown and Y. Li, *Level lowering for half-integral weight modular forms*, Proc. Amer. Math. Soc., **138**, 1171-1173, 2010.

21. J. Brown, *The first negative Hecke eigenvalue of genus 2 Siegel cuspforms with level* $N \geq 1$, Int. J. Number Theory, **6**(4), 857-867, 2010.

22. J. Brown and Y. Li, *Distribution of powers of the partition function modulo* ℓ^j, J. Number Theory, **129**, 2557-2568, 2009.

23. J. Brown, *Residually reducible representations of algebras over local Artinian rings*, Proc. Amer. Math. Soc., **136**, 3409-3414, 2008.

24. J. Brown, *Saito-Kurokawa lifts and applications to arithmetic*, Conference Proceedings of the 9th Autumn Workshop on Number Theory, Hakuba, Japan, 1-11, 2007.

25. J. Brown, *An inner product relation on Saito-Kurokawa lifts*, Rama. J., **14**(1), 89-105, 2007.

26. J. Brown, *Saito-Kurokawa lifts and applications to the Bloch-Kato conjecture*, Compos. Math., **143**(2), 290-322, 2007.

GRANTS (Total funding = $2,555,540)

1. *Number theory meetings in the southeast*, National Science Foundation, PI, 2017-2018, $22,233.
2. *RTG: Coding theory, Cryptography, and Number Theory*, National Science Foundation, PI, 2016-2021, $2,126,971.
3. *Southeast Number Theory Meetings,* National Science Foundation, Co-PI, 2015-16, $13,615.
4. *Southeast Number Theory Meetings,* National Security Agency, Co-PI, 2015-16, $15,675.
5. *p-adic methods for Jacobi modular forms and global points on elliptic curves,* Clemson University Research Grant Committee, PI, 2014-15, $2,880.
6. *Southeastern conference for undergraduate women in mathematics,* TENSOR Women and Mathematics Grants, MAA, PI, 2014-15, $3,000.
7. *Southeastern conference for undergraduate women in mathematics,* TENSOR Women and Mathematics Grants, MAA, PI, 2013-14, $5,998.
8. *Southeastern number theory meetings,* National Science Foundation, Co-PI, 2013-14, $12,696.
9. *PANTS and SERMON meetings in the Southeast,* National Security Agency, Co-PI, 2013-14, $15,926.
10. *Collaborative Research: Research Experience for Undergraduates: Algebraic geometry, combinatorics, and number theory,* National Science Foundation, PI, 2012-14, $240,789.
11. *Southeastern Number Theory Meetings*, National Science Foundation, Co-PI, 2012-13, $12,012.
12. *Palmetto Number Theory Series/SouthEast Regional Meeting on Numbers*, National Security Agency, PI, 2011-12, $14,483.
13. *Palmetto Number Theory Series/SouthEast Regional Meeting on Numbers*, National Science Foundation, Co-PI, 2011-12, $11,223.
14. *The arithmetic of Siegel modular forms*, Young Investigator Grant, National Security Agency, PI, 2011-13, $30,000.
15. *Palmetto Number Theory Series*, National Science Foundation, Co-PI, 2010-11, $13,423.
16. *Palmetto Number Theory Series*, National Security Agency, PI, 2009-10, $13,507.
17. *Palmetto Number Theory Series*, National Science Foundation, Co-PI, 2009-10, $11,096.

GRADUATE STUDENT ADVISING

Current Students

- Huixi Li (Ph.D. Clemson 2018)
- Hugh Geller (Ph.D. Clemson TBD)

Former Students

- Hugh Geller, "*Ramanujan type congruences for the Klingen-Eisenstein series*", 77 pages, (M.S. Clemson '16)
- Rodney Keaton, "*Level stripping of genus 2 Siegel modular forms,*" 136 pages, (Ph.D. Clemson '14)
  - Initial employment: Three year postdoc at the University of Oklahoma
- Dania Zantout, "*On the cuspidality of Maass-Gritsenko and mixed level lifts,*" 247 pages, (Ph.D. Clemson '13)
  - Initial employment: Visiting assistant professor at Clemson University
- Sevasti (Cindy) Tagaris, (Job at NSA before completing M.S., '13)
- Rodney Keaton, "*Explicit level-lowering for 2-dimensional modular Galois representations,*" (M.S. Clemson '10, Advised jointly with Kevin James)

Graduate Student Research Papers: (co-authored are also listed under research papers above)

1. J. Brown, D. Heras (ugrad), K. James, R. Keaton (grad), A. Qian (ugrad), *Amicable pairs and aliquot cycles for elliptic curves over number fields*, Rocky Mountain Math. J. , **46**(6), 1853-1866, 2016.
2. J. Brown, R. Cass (ugrad), K. James, R. Keaton (grad), S. Parenti (ugrad), D. Shankman (ugrad), *Counting tamely ramified extensions of local fields up to isomorphism*, Integers, #A53, **16**, 1-12, 2016.
3. J. Brown and D. Zantout, *Mixed level Saito-Kurokawa lifts*, Rama. J., **39**, 247-257, 2016.
4. J. Brown and R. Keaton (grad), *Congruence Primes for Ikeda Lifts and the Ikeda ideal*, Pacific J. Math, **274**(1), 27-52, 2015.
5. J. Brown, A. Hasmani (ugrad), L. Hiltner (ugrad), A. Kraft (ugrad), D. Scofield (ugrad), K. Wash (grad), *Classifying extensions of the field of formal Laurent series over* $\mathbb{F}_p$, Rocky Mountain Math. J., **45**(1), 115-130, 2015.

6. J. Brown, R. Cass (ugrad), K. James, R. Keaton (grad), S. Parenti (ugrad), D. Shankman (ugrad), *Degree 14 extensions of* $\mathbb{Q}_7$, Int. J. Pure and Appl. Math., **100**(2), 337-345, 2015.

7. J. Brown and R. Keaton (grad), *Level stripping for Siegel modular forms with reducible Galois representations*, J. Number Theory, **133**(5), 1492-1501, 2013.

8. N. Amersi (ugrad), J. Beyerl (grad), J. Brown, A. Proffer (ugrad), L. Rolen (ugrad), *Pullbacks of Siegel Eisenstein series and associated critical L-values*, Rama. J., **27**(2), 151-162, 2012.

Doctoral Committee Member

- Aliekber Gürel (Caltech '07)
- Jeff Beyerl (Clemson '12)
- Luke Giberson (Clemson '17)
- Catherine Trentacoste (Clemson '12)
- Chris Johnson (Clemson '13)
- Kirsti Wash (Clemson '14)
- Sarah Anderson (Clemson '15)

Masters Committee Member

- Jeff Beyerl (Clemson '09)
- Catherine Trentacoste (Clemson '09)
- Jeannie Friedel (Clemson '10)
- Jason Hedetniemi (Clemson '12)
- Trevor Vildari (Clemson '13)
- Luke Giberson (Clemson '14)

UNDERGRADUATE STUDENT ADVISING

Undergraduate Research Mentoring:

1. Clemson University
    - Jarryd Boyle, Luna Bozeman, Catherine Kenyon, Sloan Neitert, Trevor Squires, Bo Sun
        (a) 2016-17 Creative Inquiry: "Counting sums of squares using modular forms"

- Patrick Dynes (co-advised with Kevin James)
  (a) 2015-17 Honors Thesis: "Lang-Trotter conjecture for Siegel modular forms"
- Patrick Dynes, Rivers Jenkins, Dalton Randall (co-advised with Felice Manganiello)
  (a) 2015 Creative Inquiry: "Coding theory"
- Sam Mixon, Kristen Savary, Ashley Stanziola (co-advised with Felice Manganiello)
  (a) 2015 Creative Inquiry: "Cryptography"
- Andrew Bell, Patrick Dynes, Debra Parmentola, Brittany Rosener
  (a) 2013-14 Creative Inquiry: "Public key cryptography"
- Joel Clingempeel
  (a) 2011-12 "Siegel modular forms"
  (b) 2012-13 Honors Thesis: "Averages of standard L-values of genus 2 Siegel modular forms"

2. Program Director: Clemson REU in Combinatorics, Computational Algebraic Geometry, and Number Theory: Summer 2013
   - "Degree 14 extensions of $\mathbb{Q}_7$"
     – Robert Cass (University of Kentucky)
     – Salvatore Parenti (University of Michigan)
     – Daniel Shankman (University of Tennessee - Knoxville)
   - "Eta quotients" (Jointly advised with Kevin James)
     – Allison Arnold-Roksandich (Harvey Mudd College)
     – Kimberly Stubbs (University of North Carolina - Asheville)
3. City University of New York - Queens College
   - Palak Bhasin
     (a) 2015-16 Honors Thesis: "Elliptic curves and applications to cryptography"
4. Program Director: Clemson REU in Combinatorics, Computational Algebraic Geometry, and Number Theory: Summer 2012
   - "Classifying local fields of characteristic p"
     – Alfeen Hasmani (Molloy College)
     – Lindsey Hiltner (University of North Dakota)
     – Angela Kraft (Bethany Lutheran College)
     – Daniel Scofield (Grove City College)
   - "Amicable pairs for elliptic curves over number fields" (Jointly advised with Kevin James)

  - David Heras (Radford University)
  - Andrew Qian (University of California at Berkeley)
- "Champion primes for elliptic curves" (Jointly advised with Kevin James)
  - Brandon Tran (Massachusetts Institute of Technology)
  - Minh-Tam Trinh (Princeton University)
  - Philip Wertheimer (Johns Hopkins University)

5. Faculty research advisor: Clemson REU in Combinatorics and Computational Number Theory: Summer 2010

   - "Average values for L-functions on GL(2)"
     - Nadine Amersi (University College London)
     - Allison Proffer (Virginia Commonwealth University)
     - Larry Rolen (University of Wisconsin-Madison)

6. California Institute of Technology (Summer Undergraduate Research Fellowship)

   - Yingkun Li (Caltech)

     (a) Summer 2008 "Distribution of powers of the partition function modulo ℓ^j"

Undergraduate Research Papers: (also listed under research papers above)

1. J. Brown, D. Heras (ugrad), K. James, R. Keaton (grad), A. Qian (ugrad), *Amicable pairs and aliquot cycles for elliptic curves over number fields*, Rocky Mountain Math. J., **46**(6), 1853-1866, 2016.

2. J. Brown, R. Cass (ugrad), K. James, R. Keaton (grad), S. Parenti (ugrad), D. Shankman (ugrad), *Counting tamely ramified extensions of local fields up to isomorphism*, Integers, #A53, **16**, 1-12, 2016.

3. J. Brown, A. Hasmani (ugrad), L. Hiltner (ugrad), A. Kraft (ugrad), D. Scofield (ugrad), K. Wash (grad), *Classifying extensions of the field of formal Laurent series over* $\mathbb{F}_p$, Rocky Mountain Math. J., **45**(1), 115-130, 2015.

4. J. Brown, R. Cass (ugrad), K. James, R. Keaton (grad), S. Parenti (ugrad), D. Shankman (ugrad), *Degree 14 extensions of* $\mathbb{Q}_7$, Int. J. Pure and Appl. Math., **100**(2), 337-345, 2015.

5. N. Amersi (ugrad), J. Beyerl (grad), J. Brown, A. Proffer (ugrad), L. Rolen (ugrad), *Pullbacks of Siegel Eisenstein series and associated critical L-values*, Rama. J., **27**(2), 151-162, 2012.

6. J. Brown and Y. Li (ugrad), *Level lowering for half-integral weight modular forms*, Proc. Amer. Math. Soc., **138**, 1171-1173, 2010.

7. J. Brown and Y. Li (ugrad), *Distribution of powers of the partition function modulo ℓ^j*, J. Number Theory, **129**, 2557-2568, 2009.

EXPOSITORY WRITING

1. J. Brown, Graduate Linear Algebra, (209 pages, 2015)
2. J. Brown and K. Klosin with an appendix by K. Conrad, *On the norm of p-stabilized elliptic newforms*, 18 pages.
3. J. Brown, Introductory Topology, (271 pages, 2010)
4. J. Brown, Local class field theory, (97 pages, 2008)
5. J. Brown, *Alex, I will take congruent numbers for one million dollars please*, (14 pages, 2007)
6. J. Brown, *Congruent numbers and elliptic curves*, (26 pages, 2007)
7. J. Brown, An introduction to Iwasawa theory, (102 pages, 2006)
8. J. Brown, *Abel and the insolvability of the quintic*, (13 pages, 2005)
9. J. Brown, *Complex theory of abelian varieties*, (16 pages, 2004)
10. J. Brown, *An introduction to algebraic number theory*, (120 pages, 2001)

PLENARY ADDRESSES

1. *Congruence primes for automorphic forms on unitary groups and applications to the arithmetic of Ikeda lifts*, Galois Representation and Automorphic Forms, Polish Academy of Sciences Conference Center, Bedlewo, Poland (August 18, 2016)
2. *Ikeda lifts, the Ikeda ideal, and a conjecture of Katsurada*, Workshop on Bianchi and Siegel modular forms, University of Sheffield, Sheffield, UK (July 16, 2014)
3. *Applications of Saito-Kurokawa lifts to arithmetic,* 9th Autumn Workshop on Number Theory(focusing on GSp(4)), Hakuba, Japan. (November 6, 2006)
4. *Saito-Kurokawa lifts and the Bloch-Kato conjecture,* Midwest Number Theory Day, University of Wisconsin, Madison, WI. (November 4, 2005)

COLLOQUIUM TALKS

1. *TBD*, University of Idaho, Moscow, ID. (November 9, 2017)

2. *Right triangles and a problem worth a million dollars*, City University of New York - Queens College. (March 30, 2016)

3. *Sums of squares, generating functions, and other applications of modular forms*, City University of New York - Queens College. (March 13, 2016)

4. *Sums of squares, generating functions, and other applications of modular forms*, Colby College, Waterville, ME. (January 28, 2016)

5. *Sums of squares, generating functions, and other applications of modular forms*, Hofstra University, Hempstead, NY. (January 27, 2016)

6. *Sum of squares and other applications of modular forms*, Fordham University, Bronx, NY. (December 1, 2015)

7. *Right triangles and a million dollars*, San Jose State University, San Jose, CA. (February 20, 2015)

8. *The interplay of complex analysis and arithmetic in number theory,* California Polytechnic State University, San Luis Obispo, CA. (February 6, 2015)

9. *Right triangles and a million dollars,* Elon University, Elon, NC. (October 29, 2014)

10. *Right triangles and a million dollars,* High Point University, High Point, NC. (October 28, 2014)

11. *Right triangles and a million dollars,* Fordham University, Bronx, NY. (January 29, 2014)

12. *Prime factorization, complex analysis, and arithmetic geometry*, Dartmouth College, Hanover, NH (September 26, 2013)

13. *Prime factorization, complex analysis, and arithmetic geometry*, Fordham University, Bronx, NY. (April 18, 2013)

14. *Rational right triangles and a million dollar problem,* University of San Diego, San Diego, CA. (February 16, 2012)

15. *Rational right triangles and a million dollar problem,* Haverford College, Haverford, PA. (January 30, 2012).

16. *Dirichlet's class number formula and generalizations,* Clemson University, Clemson, SC. (February 21, 2008)

17. *Dirichlet's class number formula and generalizations,* Florida State University, Tallahassee, FL. (January 18, 2008)

18. *Dirichlet's class number formula and generalizations,* Oregon State University, Corvallis, OR. (November 16, 2007)

19. *The congruent number problem and elliptic curves,* Math Coffees, Davidson College, Davidson, NC. (February 5, 2007)

20. *Automorphy, L-functions, and problems in arithmetic,* Bucknell University, Lewisburg, PA. (January 25, 2007)

21. *L-functions and arithmetic,* Arizona State University, Phoenix, AZ. (April 5, 2006)

22. *L-functions and arithmetic,* Armstrong Atlantic State University, Savannah, GA. (February 2, 2005)

23. *L-functions and arithmetic,* Stephen F. Austin University, Nacogdoches, TX. (January 26, 2005)

INVITED CONFERENCE TALKS

1. *Increasing diversity in mathematics*, (Panel Member) Building Bridges: 2nd EU/US Workshop on Automorphic Forms and Related Topics, University of Bristol, Bristol, UK (July 9, 2014)

2. *Congruence Primes for Ikeda Lifts and the Ikeda ideal*, 27th Automorphic Forms Workshop, University College Dublin, Dublin, Ireland (March 11, 2013)

3. *The CAP ideal and applications*, Special Session on Automorphic and Modular Forms, AMS Sectional Meeting: 2012 Spring Western Meeting, Honolulu, HI (March 3-4, 2012)

4. *Eisenstein series on* $\mathrm{GU}(3,3)$ *and non-trivial torsion in Shafarevich-Tate groups,* Special Session on Elliptic Curves, Modular Forms, and Related Topics, AMS Sectional Meeting: 2011 Fall Southeastern Meeting, Winston-Salem, NC (September 24, 2011)

5. *Research with Students: from attracting students to publishing,* (Panel Member) 25th Automorphic Forms Workshop, Oregon State University, Corvallis, OR. (March 24, 2011)

6. *Congruence primes of Saito-Kurokawa lifts,* Special Session on Automorphic forms, L-functions and applications, AMS Sectional Meeting: 2010 Spring Eastern Sectional Meeting, Newark, NJ. (May 22, 2010)

7. *Giving an effective talk*, (Panel Member), Midwest Number Theory Conference for Graduate Students III, University of Wisconsin, Madison, WI. (November 5, 2005)

INVITED RESEARCH SEMINARS

1. *Congruence primes for automorphic forms on unitary groups and applications to the arithmetic of Ikeda lifts*, Collaborative Number Theory Seminar at the CUNY Graduate Center, NYC, NY. (February 3, 2016)

2. *L-functions, modular forms, and arithmetic*, Dartmouth College, Hanover, NH. (September 26, 2013)

3. *Congruence Primes for Ikeda Lifts and the Ikeda ideal*, Number Theory Seminar, University of North Carolina - Chapel Hill, Chapel Hill, NC. (September 10, 2013)

4. *On the Bloch-Kato conjecture for elliptic modular forms of square-free level*, Collaborative Number Theory Seminar at the CUNY Graduate Center, NYC, NY. (April 19, 2013)

5. *L-functions and arithmetic*, Michigan State University, East Lansing, MI. (November 19, 2012)

6. *L-functions and arithmetic,* Research Seminar, University of San Diego, San Diego, CA. (February 16, 2012)

7. *Congruences of automorphic forms and torsion in the Bloch-Kato conjecture,* Number Theory Seminar, Texas A&M University, College Station, TX. (February 9, 2011)

8. *The Eisenstein ideal and generalizations,* Number Theory Seminar, University of South Carolina, Columbia, SC. (November 11, 2008)

9. *Saito-Kurokawa lifts and lower bounds on Selmer groups,* Number Theory Seminar, UCLA, Los Angeles, CA. (March 10, 2008)

10. *Congruences between automorphic forms and applications to arithmetic,* Algebra Seminar, Florida State University, Tallahassee, FL. (January 17, 2008)

11. *Saito-Kurokawa lifts, L-values for* GL(2)*, and congruences between Siegel modular forms,* Algebra Seminar, Boston University, Boston, MA. (February 7, 2005)

CONTRIBUTED TALKS AND PRESENTATIONS

1. *A (somewhat) gentle introduction to Hida theory*, Algebraic Geometry and Number Theory Seminar, Clemson University, Clemson, SC (April 14, 2015).

2. *Southeastern Conference for Undergraduate Women in Mathematics*, Poster presentation Mathematical Outreach Programs, Joint AMS-MAA Mathematics Meetings, San Antonio, TX. (January 11, 2015).

3. *Combing a hairy coconut (or fun facts in topology)*, Math Club Talk, Clemson University, Clemson, SC. (September 12, 2014).

4. *Aliquot cycles for elliptic curves over number fields*, Building Bridges: 2nd EU/US Workshop on Automorphic Forms and Related Topics, University of Bristol, Bristol, UK (July 10, 2014).

5. *The U_p operator and some applications*, Algebraic Geometry and Number Theory Seminar, Clemson University, Clemson, SC (February 19, 2014)

6. *L-functions, modular forms, and arithmetic geometry*, Algebra and Discrete Mathematics Seminar, Clemson University, Clemson, SC (October 17, 2013)

7. *Right triangles and a million dollars*, Math Club Talk, Clemson University, Clemson, SC (September 17, 2013).

8. *Number theory projects from the 2013 Clemson REU*, Algebraic Geometry and Number Theory Seminar, Clemson University, Clemson, SC (August 28, 2013).

9. *What is ... the BSD conjecture?* Algebra and Discrete Mathematics Seminar, Clemson University, Clemson, SC. (November 8, 2012).

10. *What is a .. p-adic L-function?* Number Theory Seminar, Clemson University, Clemson, SC. (September 19, 2012).

11. *The Bloch-Kato conjecture for modular forms of square-free level,* Building Bridges: 1st EU-US conference on automorphic forms and related topics, RWTH Aachen University, Aachen, Germany. (August 9, 2012).

12. *Congruences of automorphic forms and torsion in the Bloch-Kato conjecture,* PANTS XV, Clemson University, Clemson, SC. (February 19, 2011)

13. *2010 Clemson REU in Combinatorics and Computational Number Theory,* Algebra and Discrete Math Seminar, Clemson University, Clemson, SC. (September 2, 2010)

14. *Some background on elliptic curves and Galois cohomology,* PANTS X, Armstrong Atlantic State University, Savannah, GA. (September 20, 2009)

15. *A survey of the Hodge conjecture*, Clemson REU, Clemson University, Clemson, SC. (June 6, 2009)

16. *A survey of the Birch and Swinnerton-Dyer conjecture*, Clemson REU, Clemson University, Clemson, SC. (May 28, 2009)

17. *An introduction to p-adic L-functions*, PANTS IX, Clemson University, Clemson, SC. (February 8, 2009)

18. *Number Theory at Clemson*, 1st Year Graduate Student Seminar, Clemson University, Clemson, SC. (February 3, 2009)

19. *An introduction to Iwasawa theory*, Number Theory Seminar, Clemson University, Clemson, SC. (January 13, 20, 27, 2009)

20. *Modular forms and partitions*, Algebra, Discrete Mathematics, and Number Theory Seminar, Clemson University, Clemson, SC. (October 3, 2008)

21. *Saito-Kurokawa lifts and lower bounds on Selmer groups*, Number Theory Seminar, Caltech, Pasadena, CA. (April 3, 2008)

22. *Attaching Galois representations to modular forms*, Graduate student number theory seminar, The Ohio State University, Columbus, OH. (April 25, May 2, 2007)

23. *L-functions on GSp(4) × GL(2) and the Bloch-Kato conjecture*, Canadian Number Theory Association IX Meeting, University of British Columbia, Vancouver, BC, Canada. (July 12, 2006)

24. *L-functions on GSp(4) × GL(2) and the Bloch-Kato conjecture*, The 20th Annual Workshop on Automorphic Forms and Related Topics, University of Colorado, Boulder, CO. (March 30, 2006)

25. *Mathematics and internet security,* Mathematics Undergraduate Awards Ceremony, The Ohio State University, Columbus, OH. (May 5, 2006)

26. *The congruent number problem and elliptic curves*, Radical Pi (undergraduate math club) The Ohio State University, Columbus, OH. (February 1, 2006)

27. *Number Theory: A couple of "simple" problems,* Invitation to Research (Incoming graduate students are exposed to current research areas in various topics.) The Ohio State University, Columbus, OH. (January 23,30, 2006)

28. *Abel and the insolvability of the quintic,* VIGRE Reading Classics Working Group, The Ohio State University, Columbus, OH. (November 1, 2005)

29. *Saito-Kurokawa lifts and applications to the Bloch-Kato conjecture,* Number Theory Seminar, The Ohio State University, Columbus, OH. (October 3,10, 2005)

30. *Saito-Kurokawa lifts, L-values for GL_2, and congruences between Siegel modular forms,* The 19th Annual Workshop on Automorphic Forms and Related Topics, University of North Texas, Denton, TX. (March 20, 2005)

31. *Saito-Kurokawa lifts, L-values for GL_2, and congruences between Siegel modular forms,* AMS-MAA Joint Meeting, Atlanta, GA. (January 06, 2005)

32. *Saito-Kurokawa lifts, L-values for GL_2, and congruences between Siegel modular forms,* West Coast Number Theory Conference, UNLV, Las Vegas, NV. (December 18, 2004)

33. *Saito-Kurokawa Lifts and Congruences Among Siegel Modular Forms,* Midwest Number Theory Conference for Graduate Students and Recent PhDs, University of Wisconsin, Madison, WI. (October 25, 2003)

34. *Variation of Hodge Structures: Some Examples,* Arizona Winter School, Southwestern Center for Arithmetic Algebraic Geometry. University of Arizona, Tucson, AZ. (March 18, 2002) This was done as a group projection under the direction of Johan de Jong.

TEACHING

Clemson University:

- Calculus I (Su '15, F '16)
- Honors Calculus I (F '09, F '11)
- Honors Calculus II (S '10, F '13, F'14)
- Multivariable Calculus (F '08, S '09, Su '15, Su '17)
- Honors Multivariable Calculus (F '10, S '14, S '15, F '16, F 17)
- Linear Algebra (S '13)
- Complex Analysis (F '12)
- Advanced Calculus I (S '12)
- Advanced Calculus II (Su '10, Su '13)
- Graduate Linear Algebra (F '12, Su '13, Su '14, F '14)
- Graduate Abstract Algebra I (F '10)
- Graduate Abstract Algebra II (S '11, S '15)
- Graduate Number Theory (F '17)
- Graduate Introductory Topology (F '09)
- Graduate Algebraic Topology (S '10)
- Commutative Algebra (Su '10)
- Elliptic Curves (F '11)
- Further Topics in Elliptic Curves (S '12)

- Introduction to Lie Groups and Lie Algebras (F '11)
- Riemann surfaces and algebraic curves (S '13)
- Algebraic Geometry I (F '13)
- Algebraic Geometry II (S '14)

Queens College:

- Calculus II (S '16)
- Introduction to Algebraic Structures (S '16)
- Number Theory (F '15)

Caltech:

- Local Class Field Theory (W '08)
- Global Class Field Theory (S '08)

The Ohio State University:

- Multivariable Calculus (F '05)
- Discrete Mathematical Structures II (W '07)
- Introductory Number Theory (S '07)
- Undergraduate Abstract Algebra I (W '06)
- Undergraduate Abstract Algebra II (S '06)
- Introduction to Iwasawa Theory (F '06)

The Ross Program: (Seminar Instructor)
A program for gifted middle/high school students to learn basic number theory through exploration. (Su '06, '07)

The University of Michigan:

- Calculus I Assistant Course Coordinator with Karen Rhea (W '04, F '04)
- Calculus II Assistant Course Coordinator with Bob Megginson (F' 01) and with Al Taylor (F '03)
- Data, Functions, and Graphs (F '99)

- Calculus II (W '00 - W '02)
- Mathematics Help Lab Graduate Student Supervisor (F '00)

Michigan Mentorship Program: (Mentor)
Worked with a gifted high school student teaching him abstract algebra and number theory. Ann Arbor, MI. (Su '00, '01, '02)

Michigan State University:

- College Algebra (S '99)
- Intermediate Algebra (Su '98, '99)
- Calculus II and Calculus III Teaching Assistant ('97-'98)

EDUCATION SEMINARS AND WORKSHOPS

1. *MAA Minicourse on Java Applets in Mathematics Participant and MAA Minicourse on Teaching Galois Theory to Undergraduates*, AMS-MAA Joint Meetings, Atlanta, GA. (January, 2005)
2. *VIGRE Mathematics Education Seminar Participant*, University of Michigan, Ann Arbor, MI. (2001-2004)
3. *VIGRE Mathematics Education Seminar Research Assistant*, University of Michigan, Ann Arbor, MI. Helped analyze videos of calculus students attempting to explain the concept of a derivative. (Fall 2003)
4. *The Engaged Classroom: Getting Students Involved in the Learning Process*, Center for Research on Learning and Teaching, University of Michigan, Ann Arbor, MI. Attended seminar. (Fall 2003)

SERVICES

1. *External Expert*, Senior Research Project of Ray Wang at Heathwood Hall High School, Columbia, SC. (Fall 2017-18)
2. *Conference Organizer*, PANTS XXIX, Clemson University, Clemson, SC. (December 2-3, 2017)
3. *Conference co-organizer*, PANTS XXV, Clemson University, Clemson, SC. (December 5-6, 2015)
4. *Co-founder and director*, Program to assign teaching mentors to incoming graduate students, Clemson University, Clemson, SC (Fall 2014 - 2015)

5. *Co-founder*, Graduate teaching assistant training program, Clemson University, Clemson, SC (Fall 2014)

6. *Faculty Advisor*, AMS student chapter at Clemson University, Clemson University, Clemson, SC (Fall 2013 - present)

7. *Elected Representative*, College of Engineering and Science Representative, Calhoun Honors College Committee, Clemson University, Clemson, SC (Fall 2013 - 2016)

8. *Elected Representative*, College of Engineering and Science Representative, Athletic Advisory Council, Clemson University, Clemson, SC (Fall 2013 - 2016)

9. *Affiliated Faculty* AWM Student Chapter, Clemson University, Clemson, SC (2013-present)

10. *Volunteer* Clemson FIRST program, Clemson University, Clemson, SC. (2013-present)

11. *Committee member*, Algebra preliminary examination committee, Clemson University, Clemson, SC. (Spring 2011 - present).

12. *Department representative*, Graduate student recruitment fair, Joint Mathematics Meetings. (2010 - 2015)

13. *Committee member*, Graduate Affairs, Department of Mathematical Sciences, Clemson University, Clemson, SC (2014 - 2015)

14. *Co-organizer*, Southeastern Regional Meeting on Numbers, Winthrop University, Rock Hill, SC (March 28-29, 2015)

15. *Conference founder and organizer*, Southeastern Conference for Undergraduate Women in Mathematics, Clemson University, Clemson, SC (2013, 2014)

16. *Chair*, Calculus Committee (committee to evaluate effectiveness of calculus instruction at Clemson), Department of Mathematical Sciences, Clemson University, Clemson, SC (2013-14)

17. *Conference organizer*, PANTS XXI, Clemson University, Clemson, SC. (December 7-8, 2013)

18. *Conference organizer*, 4th Annual Southeastern REU Symposium, Clemson University, Clemson, SC (July 9, 2013)

19. *Committee member*, Undergraduate Affairs, Department of Mathematical Sciences, Clemson University, Clemson, SC (Fall 2013)

20. *Judge* Undergraduate Creative Inquiry Posters, Clemson University, Clemson, SC (April 9, 2013)

21. *Judge* MAA Undergraduate Student Poster Session, Joint Mathematics Meetings. (2013-2014)

22. *Algebra and Discrete Mathematics subfaculty representative,* Graduate student open house recruitment, Clemson University, Clemson, SC. (2009, 2013)

23. *Volunteer*, Clemson Calculus Challange, Clemson University, Clemson, SC. (2012, 2013)

24. *Conference organizer*, PANTS XVII, Clemson University, Clemson, SC. (December 3-4, 2011)

25. *Conference organizer*, PANTS XV, Clemson University, Clemson, SC. (February 19-20, 2011)

26. *Referee*, Comp. Math., IJNT, J. of Comm. Alg., JNT, Math. Res. Lett., Rocky Mount. Math.

27. *Algebra and Discrete Mathematics Subfaculty Coordinator*, Clemson University, Clemson, SC. (2010 - 2015)

28. *Research Mentor*, Clemson REU in Combinatorics and Computational Number Theory, Clemson University, Clemson, SC. (Summer 2010)

29. *Member*, Clemson Calculus Textbook Committee, Clemson University, Clemson, SC. (Spring 2010)

30. *Conference organizer*, PANTS XII, Clemson University, Clemson, SC. (February 20-21, 2010)

31. *Conference co-organizer*, PANTS X, Armstrong Atlantic State University, Savannah, GA. (September 19-20, 2009)

32. *Conference organizer*, PANTS IX, Clemson University, Clemson, SC. (February 7-8, 2009)

33. *Member*, Clemson Research Committee, Clemson University, Clemson, SC. (Fall 2008 - Fall 2010)

34. *Reviewer*, Mathematical Reviews, 10 reviews, (Fall 2007 - present)

35. *Conference co-organizer*, PANTS IV, Clemson University, Clemson, SC. (February 7-8, 2009)

36. *Seminar Organizer*, Algebraic Geometry and Number Theory Seminar, Clemson University, Clemson, SC. (2008 - 2015)

37. *Conference co-organizer*, Southern California Number Theory Day, Caltech, Pasadena, CA. (March 8, 2008)

38. *Reading Course Instructor*, Supervised a student in a reading course of algebraic number theory at The Ohio State University. (Summer 2006)

39. *Seminar Organizer*, Number Theory Seminar, The Ohio State University, Columbus, OH. (2006-2007)

40. *Chair Number Theory Session III*, AMS-MAA Joint Meetings, Atlanta, GA. (January 6, 2005)

41. *Freshmen/Sophomore Mathematics Program Committee*, Mathematics Department, University of Michigan, Ann Arbor, MI. (2004-2005)

42. *King-Chavez-Parks Program Host*, Gave talk to area high school students entitled "Clocks, Doughnuts, Paper-twisting, and Snowflakes and How They Relate to Modern Mathematics," Office of Academic Multicultural Initiatives, University of Michigan, Ann Arbor, MI. (November 13, 2003)

43. *Seminar Organizer*, Student Number Theory Seminar, University of Michigan, Ann Arbor, MI. (2000-2001, 2002-2003)