

Edray Herber Goins

CONTACT INFORMATION

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Purdue University
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EDUCATION

Stanford University, Stanford, California USA
Ph.D., Mathematics, September 1999
Dissertation Topic: “Elliptic Curves and Icosahedral Galois Representations”
Advisors: Daniel W. Bump, Karl C. Rubin

California Institute of Technology, Pasadena, California USA

B.S., Mathematics and Physics, June 1994
Advisors: Dinakar Ramakrishnan, Steven C. Frautschi

RESEARCH INTERESTS

Automorphic Forms, Class Field Theory, Elliptic Curves, Galois Representations, Number Theory, Representation Theory

APPOINTMENTS

Purdue University, West Lafayette, Indiana USA
Assistant Professor of Mathematics August 2004 – present
Visiting Scholar October 2000

California Institute of Technology, Pasadena, California USA
Taussky-Todd Instructor of Mathematics September 2003 – August 2004
Irvine Foundation Instructor of Mathematics August 2001 – August 2003

Harvard University, Cambridge, Massachusetts USA
Visiting Scholar November 2007 – December 2007
Visiting Scholar September 2001 – June 2002
Visiting Scholar April 2000

Max Planck Institut für Mathematik, Bonn, Germany
Postdoctoral Fellow January 2001 – June 2001

Mathematical Sciences Research Institute, Berkeley, California USA
Postdoctoral Fellow August 2000 – December 2000
Postdoctoral Fellow August 1999 – September 1999

Institute for Advanced Study, Princeton, New Jersey USA
Member, School of Mathematics Sep 1999 – August 2000

National Security Agency, Ft. George Meade, Maryland USA
Summer Internship June 1996 – August 1996
Summer Internship June 1995 – August 1995

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|------------------------|--|
| AWARDS AND HONORS | <p>2006 Bharucha-Reid Lecture, NAM Faculty Conference on Research and Teaching</p> <p>2004 Emerging Scholar of the Year, Black Issues in Higher Education</p> <p>2003 ASCIT Teaching Award Nomination, California Institute of Technology</p> <p>1999 James W. Lyons Award for Service, Stanford University</p> <p>1999 Graduate Service Award, Graduate Student Council, Stanford University</p> <p>1999 Outstanding Graduate Student, Chicano/Latino Graduate Student Association, Stanford University</p> <p>1996 Outstanding Graduate Student, Black Community Services Center, Stanford University</p> <p>1994 Rodman W. Paul History Prize, California Institute of Technology</p> <p>1993 Dean's Cup for Service, California Institute of Technology</p> <p>1989 Bronze Medal in Mathematics, Los Angeles Academic Decathlon</p> |
| FELLOWSHIPS | <p>2008 Teaching for Tomorrow Fellowship Award, Purdue University</p> <p>2006 Purdue Research Foundation Summer Faculty Grant (declined)</p> <p>1994 – 1999 National Physical Science Consortium Graduate Fellowship</p> <p>1993 Los Angeles Philanthropic Foundation Scholarship</p> <p>1992, 1993 American Physical Society Scholarship</p> <p>1991, 1992 Morgan Ward Mathematics Prize, California Institute of Technology</p> <p>1990 Robert A. Millikan Physics Scholarship, California Institute of Technology</p> <p>1990 Sigma Pi Phi Scholarship</p> <p>1990 NAACP Roy A. Wilkins Scholarship</p> <p>1989 National Achievement Scholarship</p> <p>1989 National Merit Scholarship Honorable Mention</p> |
| REFEREED PUBLICATIONS | <ol style="list-style-type: none"> 1. With A. Togbe, Pythagorean Quadruplets. <i>International Journal of Pure and Applied Mathematics</i>, Vol 35 (2007), no. 3, pgs 363 - 372. 2. With D. Maddox, Heron Triangles via Elliptic Curves. <i>Rocky Mountain Journal of Mathematics</i>, Vol. 36; (2005), no. 5, pgs. 1511 - 1526. 3. Icosahedral \mathbb{Q}-curve Extensions. <i>Math Res. Lett.</i> 10 (2003), no. 2-3, pgs.205-217. 4. A Ternary Algebra with Applications to Binary Quadratic Forms. <i>Council for African-American Researchers in the Mathematical Sciences</i>, Vol. IV; <i>Contemp. Math.</i> 284 (2001), pgs. 7 - 12. 5. Artin's Conjecture and Elliptic Curves. <i>Council for African-American Researchers in the Mathematical Sciences</i>, Vol. III; <i>Contemp. Math.</i> 275 (2001), pgs. 39 - 51. 6. With M. Currie, The Fractional Parts of $\frac{n}{k}$. <i>Council for African-American Researchers in the Mathematical Sciences</i>, Vol. III; <i>Contemp. Math.</i> 275 (2001), pgs. 13 - 31. 7. With M. Currie, On the Distribution of Fractional Parts. Internal publication of the National Security Agency. (1997). |
| PUBLICATIONS IN PRESS | <ol style="list-style-type: none"> 8. With F. Luca and A. Togbe, On the Diophantine Equation $x^2 + 2^\alpha 5^\beta 13^\gamma = y^n$. <i>Conference of the Algorithmic Number Theory Seminar (ANTS-VIII)</i>. Accepted January 10, 2008. |
| PUBLICATIONS SUBMITTED | <ol style="list-style-type: none"> 9. Extending the Serre-Faltings Method for \mathbb{Q}-Curves, 15 pp. Submitted August 11, 2008. 10. With T. Washington, On the Number of Ways to Climb a Staircase, 15 pp. Submitted July 28, 2008. 11. Semi-Magic Squares and Elliptic Curves, 5 pp. Submitted July 23, 2008. |

PUBLICATIONS IN
PROGRESS

12. With G. Campbell, Heron Triangles, Diophantine Problems, and Elliptic Curves.
13. With L. Kilford, Counting Mod p Solutions via Modular Forms.
14. Explicit Descent via 4-Isogeny on an Elliptic Curve.
15. Heptaoctahedral Galois Representations.
16. On Rational Diophantine 6-tuples.
17. On the Modularity of Wildly Ramified Galois Representations.

INVITED TALKS

1. Graduate School Panel
Summer Undergraduate Mathematical Sciences Research Institute (SUMSRI)
Miami University, Oxford, Ohio
July 2, 2008
2. On Finding Large Rational Solutions to $u^3 - dv^3 = 1$
Summer Mathematics Institute (SMI) Seminar
Cornell University, Ithaca, New York
June 27, 2008
3. Does There Exist an Elliptic Curve E/\mathbb{Q} with Mordell-Weil Group $Z_2 \times Z_8 \times Z^4$?
Algebraic Geometry Seminar
University of Bristol, England, United Kingdom
May 14, 2008
4. What Good is Mathematics Anyway?
High School Mathematics Achievement Banquet
University of Evansville, Evansville, Indiana
April 23, 2008
5. Fermat's Last Theorem: The E! True Hollywood Story
Mathematics Colloquium
University of Evansville, Evansville, Indiana
April 23, 2008
6. Distributions of 2-Selmer Ranks for Elliptic Curves, Part III
Automorphic Forms Seminar
Purdue University, West Lafayette, Indiana
January 31, 2008
7. Distributions of 2-Selmer Ranks for Elliptic Curves, Part II
Automorphic Forms Seminar
Purdue University, West Lafayette, Indiana
January 24, 2008
8. Distributions of 2-Selmer Ranks for Elliptic Curves, Part I
Automorphic Forms Seminar
Purdue University, West Lafayette, Indiana
January 17, 2008
9. Does There Exist an Elliptic Curve E/\mathbb{Q} with Mordell-Weil Group $Z_2 \times Z_8 \times Z^4$?
Number Theory Seminar
University of Illinois, Urbana-Champaign, Illinois
January 15, 2008
10. Graduate School Panel
Summer Undergraduate Mathematical Sciences Research Institute (SUMSRI)
Miami University, Oxford, Ohio
July 11, 2007
11. Introduction to Collaborative Learning
Upward Bound Math and Science Training
Simmons College, Boston, Massachusetts
June 19, 2007
12. There exist infinitely many rational Diophantine 6-tuples – almost
Session on Arithmetic Geometry
Joint Meeting of the AMS, New Orleans, Louisiana
January 8, 2007
13. Why Should I Care About Lie Groups?
Mathematics Colloquium
Howard University, Washington, District of Columbia
November 9, 2006

14. Why Should I Care About Lie Groups?
Blackwell-Tapia Conference
Institute for Mathematics and its Applications, Minneapolis, Minnesota November 4, 2006
15. A Year in the Life of a Number Theorist
MA 108: Mathematics as a Profession
Purdue University, West Lafayette, Indiana November 2, 2006
16. Ellipsis and Pendulums and Groups, Oh My!: From Elliptic Integrals to Elliptic Curves
SCI 110: Honors Science
Purdue University, West Lafayette, Indiana October 30, 2006
17. Does There Exist an Elliptic Curve E/\mathbb{Q} with Mordell-Weil Group $Z_2 \times Z_8 \times Z^4$?
Automorphic Forms Seminar
Purdue University, West Lafayette, Indiana September 28, 2006
18. A Year in the Life of a Number Theorist
Summer Mathematics Institute (SMI) Seminar
Cornell University, Ithaca, New York July 7, 2006
19. A Year in the Life of a Number Theorist
Summer Program in Research and Learning (SPIRAL) Seminar
University of Maryland, College Park, Maryland July 5, 2006
20. From Diophantine Equations to Representations of Galois Groups
Bridge to Research Seminar
Purdue University, West Lafayette, Indiana April 24, 2006
21. Extending the Serre-Faltings Method for \mathbb{Q} -Curves
Number Theory Seminar
University of Wisconsin, Madison, Wisconsin April 11, 2006
22. A Year in the Life of a Number Theorist
Bharucha-Reid Lecture, National Association of Mathematicians (NAM) Faculty Conference
Albany State, Albany, Georgia March 11, 2006
23. Towards Artins Conjecture for Three-Dimensional Galois Representations, Part II
Automorphic Forms Seminar
Purdue University, West Lafayette, Indiana November 3, 2005
24. Towards Artins Conjecture for Three-Dimensional Galois Representations, Part I
Automorphic Forms Seminar
Purdue University, West Lafayette, Indiana October 26, 2005
25. Prime Numbers, L -Series, and Representations of Galois Groups
REU Seminar
Clemson University, Clemson, South Carolina July 8, 2005
26. Prime Numbers, L -Series, and Representations of Galois Groups
Summer Undergraduate Mathematical Sciences Institute (SUMSRI) Seminar
Miami University; Oxford, Ohio June 16, 2005
27. On the Modularity of Wildly Ramified Galois Representations
Regional Meeting of the AMS
Western Kentucky University, Bowling Green, Kentucky March 19, 2005
28. On Finding Large Rational Solutions to $u^3 - dv^3 = 1$
Automorphic Forms Workshop
University of North Texas, Denton, Texas March 17, 2005
29. On Finding Large Rational Solutions to $u^3 - dv^3 = 1$
Mathematics Colloquium
SUNY Buffalo, Buffalo, New York February 24, 2005

30. From Moduli Spaces to Modular Curves, Part II
Working Algebraic Geometry Seminar
Purdue University, West Lafayette, Indiana September 29, 2004
31. On the Modularity of Wildly Ramified Galois Representations
Number Theory Seminar
University of Illinois, Urbana-Champaign, Illinois September 28, 2004
32. From Moduli Spaces to Modular Curves, Part I
Working Algebraic Geometry Seminar
Purdue University, West Lafayette, Indiana September 22, 2004
33. On the Modularity of Wildly Ramified Galois Representations
Automorphic Forms Seminar
Purdue University, West Lafayette, Indiana September 9, 2004
34. On the Modularity of Wildly Ramified Galois Representations
Number Theory Seminar
University of California, Santa Barbara, California May 25, 2004
35. Congruent Numbers, Rational Triangles, and Elliptic Curves
Summer Undergraduate Mathematical Sciences Research Institute (SUMSRI) Seminar
Miami University, Oxford, Ohio June 10, 2004
36. Congruent Numbers, Rational Triangles, and Elliptic Curves
Illinois Number Theory Conference
University of Illinois, Urbana-Champaign, Illinois May 22, 2004
37. Congruent Numbers, Rational Triangles, and Elliptic Curves
Mathematics Colloquium
Center for Communications Research, La Jolla, California May 18, 2004
38. On the Modularity of Wildly Ramified Galois Representations
Number Theory Seminar
University of California, San Diego, California April 22, 2004
39. On the Modularity of Wildly Ramified Galois Representations
Regional Meeting of the AMS
University of Southern California, Los Angeles, California April 3, 2004
40. On the Modularity of Wildly Ramified Galois Representations
Automorphic Forms Workshop
University of California, Santa Barbara, California March 21, 2004
41. Application of Mathematics to Chemistry: A History of Quantum Mechanics
Honors Chemistry Class
Washington Preparatory High School, Los Angeles, California March 8, 2004
42. On the Modularity of Wildly Ramified Galois Representations
Mathematics Colloquium
Rice University, Houston, Texas February 16, 2004
43. On the Modularity of Wildly Ramified Galois Representations
Mathematics Colloquium
Purdue University, West Lafayette, Indiana January 27, 2004
44. On the Modularity of Wildly Ramified Galois Representations
Mathematics Colloquium
University of Massachusetts, Boston, Massachusetts November 24, 2003
45. On the Modularity of Wildly Ramified Galois Representations
Number Theory Seminar
University of California, Los Angeles, California November 10, 2003

46. On the Modularity of Wildly Ramified Galois Representations
Number Theory Seminar
California Institute of Technology, Pasadena, California October 30, 2003
47. Congruent Numbers, Rational Triangles, and Elliptic Curves
Mathematics Colloquium
Occidental College, Los Angeles, California October 23, 2003
48. Congruent Numbers, Rational Triangles, and Elliptic Curves
Louis Stokes Alliance for Minority Participation (LSAMP) Regional Conference
Drexel University, Philadelphia, Pennsylvania March 29, 2003
49. Extending the Serre-Faltings Method for \mathbb{Q} -Curves
Number Theory Seminar
California Institute of Technology, Pasadena, California March 6, 2003
50. Where Have the Black Students Gone?
Office of Minority Student Education
California Institute of Technology, Pasadena, California February 26, 2003
51. Congruent Numbers, Rational Triangles, and Elliptic Curves
Mathematics Colloquium
Wesleyan University, Middletown, Connecticut January 24, 2003
52. Deformations of Galois Representations: An Adventure in Galois Cohomology
Modular Curves Seminar
Harvard University, Cambridge, Massachusetts January 21, 2003
53. Elliptic Curves and Icosahedral Galois Representations, Part II
Beginning Research in Number Theory Seminar
University of California, Los Angeles, California December 3, 2002
54. Elliptic Curves and Icosahedral Galois Representations, Part I
Beginning Research in Number Theory Seminar
University of California, Los Angeles, California November 26, 2002
55. Icosahedral \mathbb{Q} -Curve Extensions
Mathematics Colloquium
California State University, Long Beach, California October 18, 2002
56. Are the Students Learning?
Teaching Assistant Preparation Keynote Address
California Institute of Technology, Pasadena, California September 26, 2002
57. Congruent Numbers, Rational Triangles, and Elliptic Curves
Mathematics Colloquium
Claremont Colleges, Pomona, California September 25, 2002
58. Kleins Galois Theory of the Icosahedral Group via Elliptic Curves
Regional Meeting of the AMS
Portland State University, Portland, Oregon June 22, 2002
59. Icosahedral \mathbb{Q} -Curve Extensions
Number Theory Seminar
University of California, Irvine, California April 2, 2002
60. Icosahedral \mathbb{Q} -Curve Extensions
Number Theory Seminar
University of California, Santa Barbara, California March 15, 2002
61. Icosahedral \mathbb{Q} -Curve Extensions
Number Theory Seminar
California Institute of Technology, Pasadena, California February 14, 2002

62. Icosahedral \mathbb{Q} -Curve Extensions
 Number Theory Seminar
 Boston University, Boston, Massachusetts December 10, 2001
63. Icosahedral \mathbb{Q} -Curve Extensions
 Number Theory Seminar
 Harvard University, Cambridge, Massachusetts December 5, 2001
64. Finding a Modular Form Associated to a $PSL(2, 7)$ -Extension
 Modular Curves Seminar
 Harvard University, Cambridge, Massachusetts October 29, 2001
65. Galois Representations of $PSL(2, 7)$
 Number Theory Seminar
 Max Planck Institute, Bonn, Germany May 16, 2001
66. An Icosahedral Representation Attached at a \mathbb{Q} -Curve
 Number Theory Seminar
 Max Planck Institute, Bonn, Germany January 24, 2001
67. Galois Representations of $PSL(2, 7)$
 Number Theory Seminar
 University of California, San Diego, California December 7, 2000
68. Galois Representations of $PSL(2, 7)$
 Number Theory Seminar
 Stanford University, Stanford, California November 28, 2000
69. Galois Representations of $PSL(2, 7)$
 Number Theory Seminar
 Mathematical Sciences Research Institute, Berkeley, California November 27, 2000
70. An Icosahedral Representation Attached at a \mathbb{Q} -Curve
 Number Theory Seminar
 University of California, Berkeley, California November 17, 2000
71. Elliptic Curves and Polynomials of Degree 5
 Postdoctoral Fellows Seminar
 Mathematical Sciences Research Institute, Berkeley, California November 3, 2000
72. Moving in Academic Circles Outside the University
 Minority Alumni Lecture Series
 Stanford University, Stanford, California October 30, 2000
73. Introduction to Fourier Analysis
 National Council for Minorities in Engineering (NACME) Forum
 Convention Center, Long Beach, California October 28, 2000
74. An Icosahedral Representation Attached at a \mathbb{Q} -Curve
 Number Theory Seminar
 Purdue University, West Lafayette, Indiana October 12, 2000
75. On the Multiplicative Properties of the Sums of Squares
 Mathematics Colloquium
 Vanderbilt University, Nashville, Tennessee July 27, 2000
76. An Icosahedral Representation Attached at a \mathbb{Q} -Curve
 Conference for African-American Researchers in the Mathematical Sciences (CAARMS) 6
 Morgan State University, Baltimore, Maryland June 30, 2000
77. An Icosahedral Representation Attached at a \mathbb{Q} -Curve
 Number Theory Seminar
 Harvard University, Cambridge, Massachusetts April 26, 2000

78. An Icosahedral Representation Attached at a \mathbb{Q} -Curve Automorphic Forms Seminar
Institute for Advanced Study, Princeton, New Jersey April 4, 2000
79. An Icosahedral Representation Attached at a \mathbb{Q} -Curve NAM New Ph.D. Session – Joint Meetings of the AMS Convention Center, Washington, District of Columbia January 21, 2000
80. An Icosahedral Representation Attached at a \mathbb{Q} -Curve Mathematics Seminar
Brigham Young University, Salt Lake City, Utah December 2, 1999
81. An Icosahedral Representation Attached at a \mathbb{Q} -Curve New Postdocs Seminar
Institute for Advanced Study, Princeton, New Jersey September 23, 1999
82. On the Distribution of Fractional Parts
National Physical Science Consortium (NPSC) Conference
NPSC, La Jolla, California May 14, 1998

ACADEMIC
EXPERIENCE

California Institute of Technology, Pasadena, California USA

Director, Freshman Summer Institute

August 2007

Directed a 4-week program for 8 students entering their first year of college. Responsibilities included coordinating a staff of ten members, assisting two counselors, organizing four field trips, overseeing daily activities, and writing final program report in order to renew funding.

<http://homepage.mac.com/ehgoins/fsi/index.html>

Mathematics Instructor, Freshman Summer Institute

August 2005

Lectured during a 4-week program for 15 students entering their first year of college. Responsibilities included designing the course content, giving five lectures, creating worksheets, creating daily homework assignments, and leading a staff of two workshop leaders. Also gave a series of short lectures on current research in the mathematical sciences.

http://homepage.mac.com/ehgoins/fsi/fsi_math_2005.pdf

Mathematics Instructor, Freshman Summer Institute

August 2004

Lectured during a 4-week program for 15 students entering their first year of college. Responsibilities included designing the course content, giving five lectures, creating worksheets, creating daily homework assignments, and leading a staff of two workshop leaders.

http://homepage.mac.com/ehgoins/fsi/fsi_math_2004.pdf

Physics Instructor, Freshman Summer Institute

August 2003

Lectured during a 4-week program for 11 students entering their first year of college. Responsibilities included designing the course content, giving five lectures, creating worksheets, creating daily homework assignments, and leading a staff of two workshop leaders.

http://homepage.mac.com/ehgoins/fsi/fsi_physics_2003.pdf

Lecturer, Sophomore Mathematics Workshop

August 2003

Organized and taught a three-day residential program for 8 students entering their second year of college. Responsibilities included organizing activities for the weekend, securing a location, and lecturing on differential equations, probability theory, and quantum mechanics.

http://homepage.mac.com/ehgoins/notes/sophomore_math.pdf

Mathematics Instructor, Freshman Summer Institute

August 2002

Lectured during a 5-day program for 24 students entering their first year of college. Responsibilities included designing the course content, giving daily lectures, creating daily worksheets, creating daily homework assignments, and leading a staff of three workshop leaders.
http://homepage.mac.com/ehgoins/fsi/fsi_math_2002.pdf

Lecturer, Sophomore Mathematics Workshop **September 2001**

Mathematics / Physics Workshop Leader, Freshman Summer Institute **August 2001**

Ran daily workshops in differential calculus and Newtonian mechanics during a ten-day program for 20 students entering their first year of college.

Mathematics Instructor, Freshman Summer Institute **August 2000**

Taught a five-day course on logic and mathematical proofs for 15 students entering their first year of college.

Mathematics Instructor, Bridge Program **August 1994 – September 1994**

Mathematics Instructor, Bridge Program **August 1993 – September 1993**

Miami University, Oxford, Ohio USA
Research Mentor, SUMSRI **June 2008 – July 2008**

Designed and advised a 7-week research program for 6 undergraduate students. The program focused on finding elliptic curves of large rank having torsion subgroup $Z_2 \times Z_8$ by using a large-scale computing array.

<http://homepage.mac.com/ehgoins/sumsri/index.html>

Miami University, Oxford, Ohio USA
Research Mentor, SUMSRI **June 2007 – July 2007**

Designed and advised a 7-week research program for 4 undergraduate students. The program focused on finding elliptic curves of large rank having torsion subgroup $Z_2 \times Z_8$ by using a large-scale computing array.

<http://homepage.mac.com/ehgoins/sumsri/sumsri-07.pdf>

Research Mentor, SUMSRI **June 2006 – July 2006**

Designed and advised a 7-week research program for 5 undergraduate students. The program focused on finding elliptic curves of large rank having torsion subgroup $Z_2 \times Z_8$ by using a large-scale computing array.

<http://homepage.mac.com/ehgoins/sumsri/sumsri-06.pdf>

Research Mentor, SUMSRI **June 2005 – July 2005**

Designed and advised a 7-week research program for 5 undergraduate students. The program focused on finding elliptic curves of large rank having torsion subgroup $Z_2 \times Z_4$ by modifying an algorithm due to Nick Rogers.

<http://homepage.mac.com/ehgoins/sumsri/sumsri-05.pdf>

Research Mentor, SUMSRI **June 2004 – July 2004**

Designed and advised a 7-week research program for 5 undergraduate students. The program focused on finding large rational points on Thue equations by using continued fractions of elliptic integrals.

<http://homepage.mac.com/ehgoins/sumsri/sumsri-04.pdf>

Art, Research, and Curriculum Associates, Whittier, California USA

Leader, GED Mathematics Workshop

September 2002

Presented a one-day workshop for 10 bilingual tutors preparing adults to take the General Education Development (GED) test.

Leader, GED Mathematics Workshop

April 2002

National Action Council for Minorities in Engineering, Nashville, Tennessee USA

Workshop Leader / Physics Instructor, Summer Immersion Program

July 2000

Taught in a twelve-day residential program for 86 students entering their first year of college. Responsibilities included leading workshops in both math and physics to assist with homework assignments, presenting supplemental material in both math and physics, creating worksheets and solution manuals for the discrete math course, designing the curriculum for the physics course, and giving physics lectures.

Eastside College Preparatory High School, East Palo Alto, California USA

Pre-Calculus Teacher / Calculus Teacher

August 1998 – June 1999

Stanford University, Palo Alto, California USA

Director, Carlmont-Stanford Tutoring Program

January 1996 – June 1998

National Security Agency (NSA), Ft. Meade, Maryland USA

Leader, Analytic Number Theory Problem Solving Group

June 1996 – August 1996

Lectured five hours a week for an introductory seminar on number theory.

COURSES TAUGHT

Purdue University, West Lafayette, Indiana USA

MA 265: Linear Algebra

January 2008 – May 2008

MA 351: Elementary Linear Algebra

January 2006 – May 2006

January 2005 – May 2005

MA 366: Ordinary Differential Equations

January 2007 – May 2007

August 2004 – December 2004

MA 490: Honors Thesis

January 2008 – May 2008

MA 490: Reading Course on Modular Forms

August 2005 – December 2005

MA 553: Introduction to Abstract Algebra

January 2008 – May 2008

August 2006 – December 2006

MA 598: Reading Course on Algebraic Geometry

January 2008 – May 2008

MA 598: Reading Course on Arithmetic of Elliptic Curves

August 2006 – December 2006

MA 598: Reading Course on Algebraic Geometry

August 2005 – December 2005

MA 598: Elliptic Curves

January 2005 – May 2005

California Institute of Technology, Pasadena, California USA

Ma 5a: Introduction to Abstract Algebra

September 2002 – December 2002

Ma 7: Introduction to Number Theory

April 2004 – June 2004

Ma 105: Elliptic Curves

September 2002 – December 2002

Ma 160b: Algebraic Number Theory

January 2002 – March 2002

Ma 160c: Class Field Theory

April 2003 – June 2003

April 2002 – June 2002

Ma 162b: Galois Representations

January 2004 – March 2004

Reading Course on Arithmetic of Elliptic Curves

April 2004 – June 2004

September 2003 – December 2003

SERVICE

Conferences Organized:

- Undergraduate Mathematical Sciences Symposium
California Institute of Technology, August 21, 2003
- Interactive Parallel Computation in Support of Research in Algebra, Geometry and Number Theory
Mathematical Sciences Research Institute, January 29 – February 2, 2007

Seminars Organized:

- Number Theory Seminar, California Institute of Technology, September 2001 – August 2004
- Number Theory Seminar, Purdue University, March 2006 – present

Grant Proposals Reviewed:

- American Mathematical Society (AMS) - National Security Agency (NSA), 2008

Journals Refereed:

- American Journal of Mathematics, 2004
- Council for African-Americans in the Mathematical Sciences (CAARMS), 2007
- Glasgow Mathematical Journal, 2008
- Journal of the London Mathematical Society (LMS), 2006
- Mathematical and Computer Modelling, 2007
- Mathematics of Computation, 2008
- Monatshefte für Mathematik, 2008
- Proceedings of the American Mathematical Society (AMS), 2006

STUDENTS ADVISED

Harlan M. Kadish

- “A Generalization of a Theorem of Gauss for Fermat Curves of Exponent 7,” Summer Undergraduate Research Fellowship (SURF), California Institute of Technology, 2003
- “On the Torsion Subgroups of \mathbb{Q} -Curves,” Summer Undergraduate Research Fellowship (SURF), California Institute of Technology, 2004
- Currently a graduate student in mathematics at the University of Michigan at Ann Arbor

Davin B. Maddox

- “Heron Triangles and Elliptic Curves,” Summer Undergraduate Research Fellowship (SURF), California Institute of Technology, 2002
- “On the Ranks of Elliptic Curves,” Summer Undergraduate Research Fellowship (SURF), California Institute of Technology, 2003
- Currently a graduate student in mathematics at the University of California at Los Angeles

Charles McBrearty

- “Representations of $GL_3(\mathbb{F}_2)$,” Summer Undergraduate Research Fellowship (SURF), California Institute of Technology, 2004
- Currently a graduate student in computer science at Harvard University

Jamie E. Weigandt

- Senior Honors Thesis, Purdue University, 2008

AFFILIATIONS

American Mathematical Society (AMS)

Black Graduate Students Association (BGSA), Stanford University

- Vice-President: 1998 - 1999, President: 1996 - 1997, Treasurer: 1995 - 1996

Black Graduate Students Association (BGSA), California Institute of Technology

- Secretary: 2002 - 2004

Chicano/Latino Graduate Students Association (CLGSA), Stanford University

- Co-Chair: 1998 - 1999, Treasurer: 1997 - 1998

Conference of African-American Researchers in the Mathematical Sciences (CAARMS)
Graduate Student Mathematics Association, Stanford University

- President: 1995 - 1996

National Association for the Advancement of Colored People (NAACP)

National Conference of Black Physics Students (NCBPS)

Society for the Advancement of Chicanos and Native Americans in the Sciences (SACNAS)

- Lifetime Member: 2005 - present

Undergraduate Mathematics Club, California Institute of Technology

- Advisor: 2002 - 2004

CITIZENSHIP

Born on June 29, 1972 in Los Angeles, California, United States