

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 | 2006 2004 2003 1999 1999 1999 1996 1994 1993 1989 | Bharucha-Reid Lecture, NAM Faculty Conference on Research and Teaching Emerging Scholar of the Year, Black Issues in Higher Education ASCIT Teaching Award Nomination, California Institute of Technology James W. Lyons Award for Service, Stanford University Graduate Service Award, Graduate Student Council, Stanford University Outstanding Graduate Student, Chicano/Latino Graduate Student Association, Stanford University Outstanding Graduate Student, Black Community Services Center, Stanford University Rodman W. Paul History Prize, California Institute of Technology Dean's Cup for Service, California Institute of Technology Bronze Medal in Mathematics, Los Angeles Academic Decathlon |
| FELLOWSHIPS | 2008 2006 1994 – 1999 1993 1992, 1993 1991, 1992 1990 1990 1990 1989 1989 | Teaching for Tomorrow Fellowship Award, Purdue University Purdue Research Foundation Summer Faculty Grant (declined) National Physical Science Consortium Graduate Fellowship Los Angeles Philanthropic Foundation Scholarship American Physical Society Scholarship Morgan Ward Mathematics Prize, California Institute of Technology Robert A. Millikan Physics Scholarship, California Institute of Technology Sigma Pi Phi Scholarship NAACP Roy A. Wilkins Scholarship National Achievement Scholarship National Merit Scholarship Honorable Mention |
| 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. Extending the Serre-Faltings Method for \mathbb{Q}-Curves, 15 pp. <i>Transactions of the American Mathematical Society</i>. Accepted August 11, 2008. 9. 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"> 10. With T. Washington, A Tasty Combination: Multivariable Calculus and Differential Forms, 14 pp. Submitted April 22, 2009. 11. With T. Washington, On the Number of Ways to Climb a Staircase, 15 pp. Submitted July 28, 2008. 12. Semi-Magic Squares and Elliptic Curves, 5 pp. Submitted July 23, 2008. |

PUBLICATIONS IN
PROGRESS

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

INVITED TALKS

1. Why Should I Care About Elliptic Curves?
David Blackwell Lecture, Mathematical Association of America (MAA) MATHFest
Portland, Oregon August 7, 2009
2. TBA
Conference for African-American Researchers in the Mathematical Sciences (CAARMS) 15
Rice University, Houston, Texas June, 2009
3. Why Should I Care About Elliptic Curves?
Purdue Mathematics Club
Purdue University, West Lafayette, Indiana April 16, 2009
4. The Comet thro' the long Elliptic Curve: Why I love curves of genus 1
Bridge to Research Seminar
Purdue University, West Lafayette, Indiana February 9, 2009
5. Why Should I Care About Elliptic Curves?
National Security Agency (NSA) 5th Invitational Mathematics Meeting
Baltimore, Maryland November 23, 2008
6. Using Parallel Computing to Search for High Rank Elliptic Curves
Blackwell-Tapia Conference
SAMSI, Research Triangle Park, North Carolina November 14, 2008
7. Does There Exist an Elliptic Curve E/\mathbb{Q} with Mordell-Weil Group $Z_2 \times Z_8 \times Z^4$?
Mathematics Colloquium
Morehouse College, Atlanta, Georgia November 11, 2008
8. Panelist for "A Tale of Two Cultures"
Promoting Diversity at the Graduate Level in Mathematics: a National Forum
Mathematical Sciences Research Institute (MSRI), Berkeley, California October 17, 2008
9. Does There Exist an Elliptic Curve E/\mathbb{Q} with Mordell-Weil Group $Z_2 \times Z_8 \times Z^4$?
Mathematics and Statistics Colloquium
Swarthmore College, Swarthmore, Pennsylvania September 30, 2008
10. Graduate School Panel
Summer Undergraduate Mathematical Sciences Research Institute (SUMSRI)
Miami University, Oxford, Ohio July 2, 2008
11. On Finding Large Rational Solutions to $u^3 - dv^3 = 1$
Summer Mathematics Institute (SMI) Seminar
Cornell University, Ithaca, New York June 27, 2008
12. 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
13. What Good is Mathematics Anyway?
High School Mathematics Achievement Banquet
University of Evansville, Evansville, Indiana April 23, 2008

14. Fermat's Last Theorem: The E! True Hollywood Story
Mathematics Colloquium
University of Evansville, Evansville, Indiana April 23, 2008
15. Distributions of 2-Selmer Ranks for Elliptic Curves, Part III
Automorphic Forms Seminar
Purdue University, West Lafayette, Indiana January 31, 2008
16. Distributions of 2-Selmer Ranks for Elliptic Curves, Part II
Automorphic Forms Seminar
Purdue University, West Lafayette, Indiana January 24, 2008
17. Distributions of 2-Selmer Ranks for Elliptic Curves, Part I
Automorphic Forms Seminar
Purdue University, West Lafayette, Indiana January 17, 2008
18. Does There Exist an Elliptic Curve E/\mathbb{Q} with Mordell-Weil Group $Z_2 \times Z_8 \times \mathbb{Z}^4$?
Number Theory Seminar
University of Illinois, Urbana-Champaign, Illinois January 15, 2008
19. Graduate School Panel
Summer Undergraduate Mathematical Sciences Research Institute (SUMSRI)
Miami University, Oxford, Ohio July 11, 2007
20. Introduction to Collaborative Learning
Upward Bound Math and Science Training
Simmons College, Boston, Massachusetts June 19, 2007
21. There exist infinitely many rational Diophantine 6-tuples – almost
Session on Arithmetic Geometry
Joint Meeting of the AMS, New Orleans, Louisiana January 8, 2007
22. Why Should I Care About Lie Groups?
Mathematics Colloquium
Howard University, Washington, District of Columbia November 9, 2006
23. Why Should I Care About Lie Groups?
Blackwell-Tapia Conference
Institute for Math and its Applications (IMA), Minneapolis, Minnesota November 4, 2006
24. A Year in the Life of a Number Theorist
MA 108: Mathematics as a Profession
Purdue University, West Lafayette, Indiana November 2, 2006
25. 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
26. Does There Exist an Elliptic Curve E/\mathbb{Q} with Mordell-Weil Group $Z_2 \times Z_8 \times \mathbb{Z}^4$?
Automorphic Forms Seminar
Purdue University, West Lafayette, Indiana September 28, 2006
27. A Year in the Life of a Number Theorist
Summer Mathematics Institute (SMI) Seminar
Cornell University, Ithaca, New York July 7, 2006
28. 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
29. From Diophantine Equations to Representations of Galois Groups
Bridge to Research Seminar
Purdue University, West Lafayette, Indiana April 24, 2006

30. Extending the Serre-Faltings Method for \mathbb{Q} -Curves
 Number Theory Seminar
 University of Wisconsin, Madison, Wisconsin April 11, 2006
31. 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
32. Towards Artins Conjecture for Three-Dimensional Galois Representations, Part II
 Automorphic Forms Seminar
 Purdue University, West Lafayette, Indiana November 3, 2005
33. Towards Artins Conjecture for Three-Dimensional Galois Representations, Part I
 Automorphic Forms Seminar
 Purdue University, West Lafayette, Indiana October 26, 2005
34. Prime Numbers, L -Series, and Representations of Galois Groups
 REU Seminar
 Clemson University, Clemson, South Carolina July 8, 2005
35. Prime Numbers, L -Series, and Representations of Galois Groups
 Summer Undergraduate Mathematical Sciences Institute (SUMSRI) Seminar
 Miami University; Oxford, Ohio June 16, 2005
36. On the Modularity of Wildly Ramified Galois Representations
 Regional Meeting of the AMS
 Western Kentucky University, Bowling Green, Kentucky March 19, 2005
37. On Finding Large Rational Solutions to $u^3 - dv^3 = 1$
 Automorphic Forms Workshop
 University of North Texas, Denton, Texas March 17, 2005
38. On Finding Large Rational Solutions to $u^3 - dv^3 = 1$
 Mathematics Colloquium
 SUNY Buffalo, Buffalo, New York February 24, 2005
39. From Moduli Spaces to Modular Curves, Part II
 Working Algebraic Geometry Seminar
 Purdue University, West Lafayette, Indiana September 29, 2004
40. On the Modularity of Wildly Ramified Galois Representations
 Number Theory Seminar
 University of Illinois, Urbana-Champaign, Illinois September 28, 2004
41. From Moduli Spaces to Modular Curves, Part I
 Working Algebraic Geometry Seminar
 Purdue University, West Lafayette, Indiana September 22, 2004
42. On the Modularity of Wildly Ramified Galois Representations
 Automorphic Forms Seminar
 Purdue University, West Lafayette, Indiana September 9, 2004
43. On the Modularity of Wildly Ramified Galois Representations
 Number Theory Seminar
 University of California, Santa Barbara, California May 25, 2004
44. Congruent Numbers, Rational Triangles, and Elliptic Curves
 Summer Undergraduate Mathematical Sciences Research Institute (SUMSRI) Seminar
 Miami University, Oxford, Ohio June 10, 2004
45. Congruent Numbers, Rational Triangles, and Elliptic Curves
 Illinois Number Theory Conference
 University of Illinois, Urbana-Champaign, Illinois May 22, 2004

46. Congruent Numbers, Rational Triangles, and Elliptic Curves
Mathematics Colloquium
Center for Communications Research, La Jolla, California May 18, 2004
47. On the Modularity of Wildly Ramified Galois Representations
Number Theory Seminar
University of California, San Diego, California April 22, 2004
48. On the Modularity of Wildly Ramified Galois Representations
Regional Meeting of the AMS
University of Southern California, Los Angeles, California April 3, 2004
49. On the Modularity of Wildly Ramified Galois Representations
Automorphic Forms Workshop
University of California, Santa Barbara, California March 21, 2004
50. Application of Mathematics to Chemistry: A History of Quantum Mechanics
Honors Chemistry Class
Washington Preparatory High School, Los Angeles, California March 8, 2004
51. On the Modularity of Wildly Ramified Galois Representations
Mathematics Colloquium
Rice University, Houston, Texas February 16, 2004
52. On the Modularity of Wildly Ramified Galois Representations
Mathematics Colloquium
Purdue University, West Lafayette, Indiana January 27, 2004
53. On the Modularity of Wildly Ramified Galois Representations
Mathematics Colloquium
University of Massachusetts, Boston, Massachusetts November 24, 2003
54. On the Modularity of Wildly Ramified Galois Representations
Number Theory Seminar
University of California, Los Angeles, California November 10, 2003
55. On the Modularity of Wildly Ramified Galois Representations
Number Theory Seminar
California Institute of Technology, Pasadena, California October 30, 2003
56. Congruent Numbers, Rational Triangles, and Elliptic Curves
Mathematics Colloquium
Occidental College, Los Angeles, California October 23, 2003
57. Congruent Numbers, Rational Triangles, and Elliptic Curves
Louis Stokes Alliance for Minority Participation (LSAMP) Regional Conference
Drexel University, Philadelphia, Pennsylvania March 29, 2003
58. Extending the Serre-Faltings Method for \mathbb{Q} -Curves
Number Theory Seminar
California Institute of Technology, Pasadena, California March 6, 2003
59. Where Have the Black Students Gone?
Office of Minority Student Education
California Institute of Technology, Pasadena, California February 26, 2003
60. Congruent Numbers, Rational Triangles, and Elliptic Curves
Mathematics Colloquium
Wesleyan University, Middletown, Connecticut January 24, 2003
61. Deformations of Galois Representations: An Adventure in Galois Cohomology
Modular Curves Seminar
Harvard University, Cambridge, Massachusetts January 21, 2003

62. Elliptic Curves and Icosahedral Galois Representations, Part II
Beginning Research in Number Theory Seminar
University of California, Los Angeles, California December 3, 2002
63. Elliptic Curves and Icosahedral Galois Representations, Part I
Beginning Research in Number Theory Seminar
University of California, Los Angeles, California November 26, 2002
64. Icosahedral \mathbb{Q} -Curve Extensions
Mathematics Colloquium
California State University, Long Beach, California October 18, 2002
65. Are the Students Learning?
Teaching Assistant Preparation Keynote Address
California Institute of Technology, Pasadena, California September 26, 2002
66. Congruent Numbers, Rational Triangles, and Elliptic Curves
Mathematics Colloquium
Claremont Colleges, Pomona, California September 25, 2002
67. Kleins Galois Theory of the Icosahedral Group via Elliptic Curves
Regional Meeting of the AMS
Portland State University, Portland, Oregon June 22, 2002
68. Icosahedral \mathbb{Q} -Curve Extensions
Number Theory Seminar
University of California, Irvine, California April 2, 2002
69. Icosahedral \mathbb{Q} -Curve Extensions
Number Theory Seminar
University of California, Santa Barbara, California March 15, 2002
70. Icosahedral \mathbb{Q} -Curve Extensions
Number Theory Seminar
California Institute of Technology, Pasadena, California February 14, 2002
71. Icosahedral \mathbb{Q} -Curve Extensions
Number Theory Seminar
Boston University, Boston, Massachusetts December 10, 2001
72. Icosahedral \mathbb{Q} -Curve Extensions
Number Theory Seminar
Harvard University, Cambridge, Massachusetts December 5, 2001
73. Finding a Modular Form Associated to a $PSL(2, 7)$ -Extension
Modular Curves Seminar
Harvard University, Cambridge, Massachusetts October 29, 2001
74. Galois Representations of $PSL(2, 7)$
Number Theory Seminar
Max Planck Institute, Bonn, Germany May 16, 2001
75. An Icosahedral Representation Attached at a \mathbb{Q} -Curve
Number Theory Seminar
Max Planck Institute, Bonn, Germany January 24, 2001
76. Galois Representations of $PSL(2, 7)$
Number Theory Seminar
University of California, San Diego, California December 7, 2000
77. Galois Representations of $PSL(2, 7)$
Number Theory Seminar
Stanford University, Stanford, California November 28, 2000

78. Galois Representations of $PSL(2, 7)$
Number Theory Seminar
Mathematical Sciences Research Institute (MSRI), Berkeley, California November 27, 2000
79. An Icosahedral Representation Attached at a \mathbb{Q} -Curve
Number Theory Seminar
University of California, Berkeley, California November 17, 2000
80. Elliptic Curves and Polynomials of Degree 5
Postdoctoral Fellows Seminar
Mathematical Sciences Research Institute (MSRI), Berkeley, California November 3, 2000
81. Moving in Academic Circles Outside the University
Minority Alumni Lecture Series
Stanford University, Stanford, California October 30, 2000
82. Introduction to Fourier Analysis
National Council for Minorities in Engineering (NACME) Forum
Convention Center, Long Beach, California October 28, 2000
83. An Icosahedral Representation Attached at a \mathbb{Q} -Curve
Number Theory Seminar
Purdue University, West Lafayette, Indiana October 12, 2000
84. On the Multiplicative Properties of the Sums of Squares
Mathematics Colloquium
Vanderbilt University, Nashville, Tennessee July 27, 2000
85. 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
86. An Icosahedral Representation Attached at a \mathbb{Q} -Curve
Number Theory Seminar
Harvard University, Cambridge, Massachusetts April 26, 2000
87. An Icosahedral Representation Attached at a \mathbb{Q} -Curve
Automorphic Forms Seminar
Institute for Advanced Study (IAS), Princeton, New Jersey April 4, 2000
88. 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
89. An Icosahedral Representation Attached at a \mathbb{Q} -Curve
Mathematics Seminar
Brigham Young University, Salt Lake City, Utah December 2, 1999
90. An Icosahedral Representation Attached at a \mathbb{Q} -Curve
New Postdocs Seminar
Institute for Advanced Study (IAS), Princeton, New Jersey September 23, 1999
91. 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, Carmont-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.

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| 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 2009 – May 2009 |
| | | August 2008 – December 2008 |
| | | 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 510: Vector Calculus | August 2008 – December 2008 |
| | 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 |
| | | August 2005 – December 2005 |
| | MA 598: Reading Course on Arithmetic of Elliptic Curves | August 2006 – December 2006 |
| MA 598: Reading Course on Riemann-Roch Theorem | January 2009 – May 2009 | |
| 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, 2009
- 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
- Currently a graduate student in mathematics at Purdue University
- National Science Foundation (NSF) Graduate Fellowship Awardee, 2009

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

Mathematical Association of America (MAA)

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