

J. BRIAN CONREY
American Institute of Mathematics
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conrey@aimath.org

EDUCATION: Ph.D. 1980, University of Michigan
Thesis Advisor: H. L. Montgomery
B.A. 1976, University of Santa Clara

EMPLOYMENT: 2005 – Professor, University of Bristol
1997– Executive Director, American Institute of Mathematics
1997–2005 Professor, Oklahoma State University
1992–1997 Professor and Head, Oklahoma State University
1991–1992 Associate Professor and Head, Oklahoma State University
1990–1991 Visiting Professor, Rutgers University
1990–1991 Visitor, Institute for Advanced Study
1987–1988 Member of Institute for Advanced Study
1987–1992 Associate Professor, Oklahoma State University
1983–1987 Assistant Professor, Oklahoma State University
1982–1983 Member of Institute for Advanced Study
1982 (Summer) Visiting Assistant Professor, University of Texas
1980–1982 Visiting Lecturer, University of Illinois

FELLOWSHIPS AND HONORS:

Fellow of the AMS, 2016
AMS Levi Conant Prize, 2008
Alfred P. Sloan Research Fellowship, 1986–88
NSF Postdoctoral Fellowship, 1982–83
Graduate Fellowship, 1976–1980, University of Michigan
Honors Program Scholarship, 1973–76, University of Santa Clara
National Merit Scholarship, 1973–74

SELECTED GRANTS:

PI or co-PI on 27 awarded NSF grants totaling more than \$30 million
-NSF Focused Research Group (2018) –\$1.2 million
-NSF Institute Grant (2017), “AIM Research Conference Center ”–\$7.9 million
-NSF Institute Grant (2012), “AIM Research Conference Center ”–\$12.6 million
-NSF Institute Grant (2007), “Focused Collaborative Research at AIM” – \$7.7 million
-NSF Institute Grant (2002), “A National Conference Center” – \$5 million
-NSF Focused Research Group (2007), “L-functions and modular forms” – \$1.2 million
-NSF Focused Research Group (2000), “L-functions: symmetry and zeros” – \$500,000
-NSF Individual investigator grants in 1984, 1987, 1989, 1992, 1995, 1999, 2008, 2011, 2016
-NSF DRL (2011), “Investigating the Impact of Math Teachers’ Circles on Mathematical Knowledge for Teaching and Classroom Practice” –\$449,551

- SEDL, “Oklahoma Forum on Community Engagement in Math. and Science,” 1997
- NSF, “A Symposium on the Riemann Hypothesis,” 1996
- NSA, “A Symposium on the Riemann Hypothesis,” 1996
- NSF, “Experimental Special Session on Exemplary Current Doctoral Work,” 1994
- MAA SUMMA, “Minority Programs in Mathematics,” 1993
- NSF Young Scholars, “Program for Native American Mathematics Students,” 1993
- NSF SCREMS, “Computers in Number Theory, Analysis, and Topology,” 1984

PUBLICATIONS:

1. (with L.A. Rubel) On the location of the zeros of the derivatives of a polynomial, Proc. A.M.S., 86 (1982), 37–41.
2. Zeros of derivatives of Riemann’s xi-function on the critical line, J. Number Th., 16 (1983), 49–74.
3. Zeros of derivatives of Riemann’s xi-function on the critical line, J. Number Th., 17 (1983), 71–75.
4. (with A. Ghosh and S.M. Gonek) A note on gaps between zeros of the zeta-function, Bull. London Math. Soc., 16 (1984), 421–424.
5. (with A. Ghosh) On mean values of the zeta-function, Mathematika, 31 (1984), 159–161.
6. (with A. Ghosh, D. Goldston, S.M. Gonek and D.R. Heath-Brown) Distribution of gaps between zeros of the zeta-function, Quarterly J. of Math. Oxford (2), 36 (1985), 43–51.
7. (with R. Balasubramanian, and D.R. Heath-Brown) Asymptotic mean square of the product of the Riemann zeta-function and a Dirichlet polynomial, J. Reine Agnew. Math., 357 (1985), 161–181.
8. (with A. Ghosh) A simpler proof of Levinson’s theorem, Math. Proc. Cambridge Phil. Soc., 97 (1985), 385–395.
9. On the distribution of the zeros of the Riemann zeta-function, in Topics in Analytic Number Theory, University of Texas Press, Austin, Texas, 1985.
10. (with A. Ghosh) A mean value theorem for the Riemann zeta-function at its relative extrema on the critical line, J. London Math. Soc. (2) 32 (1985) 193–202.
11. (with A. Ghosh and S.M. Gonek) Large gaps between zeros of the zeta-functions, Mathematika, 33 (1986), 212–238.
12. (with A. Ghosh and S.M. Gonek) Simple zeros of the zeta-function of a quadratic number field, I, Inventiones Math., 86 (1986), 536–576.
13. (co-edited with A. Adolphson, A. Ghosh, and R. Yager) Analytic Number Theory and Diophantine Problems, Birkhäuser, Boston · Basel · Stuttgart, 1987.

14. (with A. Ghosh and S.M. Gonek) Simple zeros of the zeta-function of a quadratic number field, II, in *Analytic Number Theory and Diophantine Problems*, Birkhäuser, Boston · Basel · Stuttgart, 1987.
15. The fourth moment of derivatives of the Riemann zeta-function, *Quarterly J. Math. Oxford*, (2) 39 (1988), 21–36.
16. (with A. Ghosh) On the zeros of the Taylor polynomials associated with the exponential function, *American Math. Monthly*, 95 (1988), 528–533.
17. (with A. Ghosh and S. M. Gonek) Simple zeros of zeta functions. *Colloque de Théorie Analytique des Nombres "Jean Coquet"* (Marseille, 1985), 77–83, *Publ. Math. Orsay*, 88-02, Univ. Paris XI, Orsay, 1988.
18. (with A. Ghosh) Simple zeros of the Dirichlet series formed with Ramanujan's tau-function, *C. R. Math. Rep. Acad. Sci. Canada*, 10, (1988), 95–99.
19. (with A. Ghosh) Simple zeros of the Ramanujan τ -Dirichlet series, *Inventiones Math.*, 94 (1988), 403–419.
20. At least two-fifths of the zeros of the Riemann zeta-function are on the critical line, *Bull. AMS.*, 20 (1989), 79-81.
21. (with A. Ghosh and S.M. Gonek) Mean values of the Riemann zeta-function with application to the distribution of zeros, in *Number Theory, Trace Formulas and Discrete Groups*, Symposium in Honor of Atle Selberg, Academic Press, San Diego, 1989.
22. More than two-fifths of the zeros of the Riemann zeta-function are on the critical line, *J. Reine Angew. Math.*, 399 (1989), 1-26.
23. (with A. Ghosh) On mean values of the zeta-function, II, *Acta Arithmetica*, LII (1989), 367-371.
24. (with Michael W. Smiley) Some geometric aspects of hyperbolic boundary value problems, *Proc. American Math. Soc.*, 107 (1989), 591-601.
25. (with A. Ghosh) Zeros of derivatives of the Riemann zeta-function, in *Analytic Number Theory*, Proceedings of a Conference in Honor of Paul J. Bateman, Birkhäuser, Boston-Basel-Berlin(1990), 95-110.
26. (with A. Ghosh) Mean values of the Riemann zeta-function, III, in *Proceedings of the Amalfi Conference on Analytic Number Theory*, Università di Salerno, 1992, 35-59.
27. (with A. Ghosh) On the Selberg class of Dirichlet series: small degrees, *Duke*, 72 (1993), 673-693.
28. (with A. Ghosh) Turan inequalities and zeros of Dirichlet series associated with certain Dirichlet series. *Trans. American Math. Soc.*, 342 (1994), 407-419.
29. (with D. Farmer) An extension of Hecke's converse theorem, *International Mathematics Research Notices*, 9 (1995) 445-463.

30. (with E. Fransen, R. Klein, C. Scott) Mean Values of Dedekind Sums, *J. Number Theory*, 56 (1996) 214 - 226.
31. A note on the fourth power moment of the Riemann zeta-function, *Analytic Number Theory: Proceedings of a Conference in Honor of Heini Halberstam, Volume 1*, Birkhauser, 1996, 225 - 230.
32. (with P. M. Agrawal, D. C. Sorescu, R. D. Kay, D. L. Thompson, L. M. Raff, and A. K. Jameson) Spectral lines shapes in systems undergoing continuous frequency modulation, *Journal of Chemical Physics*, 105 (1996) 2686-2700.
33. (with W. Duke and D. Farmer) The distribution of the eigenvalues of Hecke operators, *Acta Arithmetica*, LXXVIII.4 (1997), 405-409.
34. (with A. Ghosh and S. M. Gonek) Simple zeros of the Riemann zeta-function, *Proc. London Math. Society* (3) 76 (1998) 497-522.
35. (with A. Ghosh) A conjecture for the sixth moment of the Riemann zeta-function, *IMRN* 15 (1998) 775-780.
36. (with D. W. Farmer) Hecke operators and the nonvanishing of L -functions. *Topics in number theory* (University Park, PA, 1997), 143-150, *Math. Appl.*, 467, Kluwer Acad. Publ., Dordrecht, 1999.
37. (with D. W. Farmer and P. J. Wallace) Factoring Hecke polynomials modulo a prime, *Pacific J. Math.* 196 (2000), no. 1, 123-130.
38. (with H. Iwaniec) The cubic moment of central values of automorphic L -functions, *Annals of Math.* (2) 151 (2000), no. 3, 1175-1216.
39. (with D. W. Farmer and K. Soundararajan) Transition mean values of real characters, *J. Number Theory* 82 (2000), no. 1, 109-120.
40. (with Xian-Jin Li) A note on some positivity conditions related to zeta and L -functions, *Internat. Math. Res. Notices* 2000, no. 18, 929-940.
41. (with A. Granville, B. Poonen, and K. Soundararajan) Zeros of Fekete polynomials, *Ann. Inst. Fourier (Grenoble)* 50 (2000), no. 3, 865-889.
42. (with D. W. Farmer), Mean values of L -functions and symmetry. *Internat. Math. Res. Notices* 2000, no. 17, 883-908.
43. (with S. Gonek), High moments of the Riemann zeta-function, *Duke Math. J.* 107 (2001), no. 3, 577-604.
44. (with Xian-Jin Li) On the trace of Hecke operators for Maass forms for congruence subgroups, *Forum Math.* 13 (2001), no. 4, 447-484.
45. L -functions and random matrices, *Mathematics unlimited—2001 and beyond*, 331-352, Springer, Berlin, 2001.
46. (with K. Soundararajan) Real zeros of quadratic Dirichlet L -functions, *Invent. Math.* 150 (2002), no. 1, 1-44.

47. (with H. Iwaniec) Spacing of zeros of Hecke L -functions and the class number problem, *Acta Arith.* 103 (2002), no. 3, 259–312.
48. (with J. P. Keating, M. O. Rubinstein, and N. C. Snaith) On the frequency of vanishing of quadratic twists of modular L -functions, *Number theory for the millennium, I* (Urbana, IL, 2000), 301–315, A K Peters, Natick, MA, 2002.
49. The Riemann hypothesis, *Notices Amer. Math. Soc.* 50 (2003), no. 3, 341–353.
50. (with D. W. Farmer, J. P. Keating, M. O. Rubinstein, and N. C. Snaith) Autocorrelation of random matrix polynomials. *Comm. Math. Phys.* 237 (2003), no. 3, 365–395.
51. (with P. J. Forrester and N. C. Snaith, Averages of ratios of characteristic polynomials for the compact classical groups. *Int. Math. Res. Not.* 2005, no. 7, 397–431.
52. (with D. W. Farmer, J. P. Keating, M. O. Rubinstein, and N. C. Snaith), Integral Moments of L -functions, *PLMS* (3) 91 (2005) 33–104.
53. Notes on eigenvalue distributions for the classical compact groups. *Recent perspectives in random matrix theory and number theory*, 111–145, *London Math. Soc. Lecture Note Ser.*, 322, Cambridge Univ. Press, Cambridge, 2005.
54. Families of L -functions and 1-level densities. *Recent perspectives in random matrix theory and number theory*, 225–249, *London Math. Soc. Lecture Note Ser.*, 322, Cambridge Univ. Press, Cambridge, 2005.
55. (with A. Gamburd) Pseudomoments of the Riemann zeta-function and pseudomagic squares. *J. Number Theory* 117 (2006), no. 2, 263–278.
56. (with J. P. Keating, M. O. Rubinstein, and N. C. Snaith) Random matrix theory and the Fourier coefficients of half-integral-weight forms. *Experiment. Math.* 15 (2006), no. 1, 67–82.
57. (with M. O. Rubinstein and N. C. Snaith) Moments of the derivative of characteristic polynomials with an application to the Riemann zeta function. *Comm. Math. Phys.* 267 (2006), no. 3, 611–629.
58. Notes on L -functions and random matrix theory. *Frontiers in number theory, physics, and geometry. I*, 107–162, Springer, Berlin, 2006.
59. (with A. Ghosh) Remarks on the generalized Lindelöf hypothesis. *Funct. Approx. Comment. Math.* 36 (2006), 71–78.
60. (with D. Farmer, B. Odgers, and N. C. Snaith) A converse theorem for $\Gamma_0(13)$, *J. Number Theory*, *J. Number Theory* 122 (2007), no. 2, 314–323.
61. (with N. C. Snaith) Applications of the L -functions ratios conjecture, *Proc. Lond. Math. Soc.* (3) 94 (2007), no. 3, 594–646.
62. (with M. O. Rubinstein, N. C. Snaith, and M. Watkins) Discretisation for odd quadratic twists. *Ranks of elliptic curves and random matrix theory*, 201–214, *London Math. Soc. Lecture Note Ser.*, 341, Cambridge Univ. Press, Cambridge, 2007.

63. (with A. Pokharel, M. O. Rubinstein, and M. Watkins) Mark Secondary terms in the number of vanishings of quadratic twists of elliptic curve L -functions. Ranks of elliptic curves and random matrix theory, 215–232, London Math. Soc. Lecture Note Ser., 341, Cambridge Univ. Press, Cambridge, 2007.
64. The mean-square of Dirichlet L -functions, preprint, arXiv:0708.2699
65. (with D. W. Farmer, J. P. Keating, M. O. Rubinstein, and N. C. Snaith) Lower order terms in the full moment conjecture for the Riemann zeta function. *J. Number Theory* 128 (2008), no. 6, 1516–1554.
66. (with N. C. Snaith) Triple correlation of the Riemann zeros. *J. Théor. Nombres Bordeaux* 20 (2008), no. 1, 61–106.
67. (with N. C. Snaith) Correlations of eigenvalues and Riemann zeros. *Commun. Number Theory Phys.* 2 (2008), no. 3, 477–536.
68. (with D. W. Farmer and Martin R. Zirnbauer) Autocorrelation of ratios of L -functions. *Commun. Number Theory Phys.* 2 (2008), no. 3, 593–636.
69. (with D. W. Farmer and Özlem Imamoglu) Palindromic random trigonometric polynomials. *Proc. Amer. Math. Soc.* 137 (2009), no. 5, 1835–1839.
70. (with H. M. Bui and M. P. Young) More than 41% of the zeros of the zeta function are on the critical line. *Acta Arith.* 150 (2011), no. 1, 35–64.
71. Applications of the asymptotic large sieve. *Actes de la Conférence “Théorie des Nombres et Applications”*, 37–46, Publ. Math. Besançon Algèbre Théorie Nr., Presses Univ. Franche-Comté, Besançon, 2011.
72. (with H. Iwaniec and K. Soundararajan) The sixth power moment of Dirichlet L -functions. *Geom. Funct. Anal.* 22 (2012), no. 5, 1257–1288.
73. (with H. Iwaniec and K. Soundararajan) Small gaps between zeros of twisted L -functions. *Acta Arith.* 155 (2012), no. 4, 353–371.
74. (with N. C. Snaith) On the orthogonal symmetry of L -functions of a family of Hecke Grössencharacters. *Acta Arith.* 157 (2013), no. 4, 323–356.
75. (with S. Bettin) Period functions and cotangent sums. *Algebra Number Theory* 7 (2013), no. 1, 215–242.
76. (with M. A. Holmstrom and T. L. McLaughlin) Smooth neighbors. *Exp. Math.* 22 (2013), no. 2, 195–202.
77. (with D. W. Farmer and Özlem Imamoglu) The nontrivial zeros of period polynomials of modular forms lie on the unit circle. *Int. Math. Res. Not. IMRN* 2013, no. 20, 4758–4771.
78. (with S. Bettin) A reciprocity formula for a cotangent sum. *Int. Math. Res. Not. IMRN* 2013, no. 24, 5709–5726.
79. (with H. Iwaniec and K. Soundararajan) Critical zeros of Dirichlet L -functions. *J. Reine Angew. Math.* 681 (2013), 175–198.

80. (S. Bettin) The second weighted moment of ζ Actes de la Conférence "Théorie des Nombres et Applications", 41–47, Publ. Math. Besançon Algèbre Théorie Nr., 2013, Presses Univ. Franche-Comté, Besançon, 2013.
81. (with S. Bettin and D.W. Farmer) An optimal choice of Dirichlet polynomials for the Nyman-Beurling criterion. Proc. Steklov Inst. Math. 280 (2013), suppl. 2, S30–S36.
82. (with H. Iwaniec) Small populations of zeros of L-functions. Number theory, analysis, and combinatorics, 11–23, De Gruyter Proc. Math., De Gruyter, Berlin, 2014.
83. (with N. C. Snaith) In support of n -correlation. Comm. Math. Phys. 330 (2014), no. 2, 639–653.
84. Riemann's hypothesis. Colloquium De Giorgi 2013 and 2014, 109–117, Colloquia, 5, Ed. Norm., Pisa, 2014.
85. (with J. Bober, D. W. Farmer, Akio Fujii, Sally Koutsoliotas, Stefan Lemurell, M. O. Rubinstein, and Hiroyuki Yoshida) The highest lowest zero of general L-functions. J. Number Theory 147 (2015), 364–373.
86. (with J. P. Keating) Moments of zeta and correlations of divisor-sums: I. Philos. Trans. Roy. Soc. A 373 (2015), no. 2040, 20140313, 11 pp.
87. (with J. P. Keating) Moments of zeta and correlations of divisor-sums: II. Advances in the theory of numbers, 75–85, Fields Inst. Commun., 77, Fields Inst. Res. Math. Sci., Toronto, ON, 2015
88. (with J. P. Keating) Moments of zeta and correlations of divisor-sums: III. Indag. Math. (N.S.) 26 (2015), no. 5, 736–747.
89. Lectures on the Riemann zeta function [book review of MR3241276]. Bull. Amer. Math. Soc. (N.S.) 53 (2016), no. 3, 507–512
90. (with J. Gabbard, K. Grant, A. Liu, K. Morrison) Intransitive dice. Math. Mag. 89 (2016), no. 2, 133–143.
91. Riemann's hypothesis. The legacy of Bernhard Riemann after one hundred and fifty years. Vol. I, 107–190, Adv. Lect. Math. (ALM), 35.1, Int. Press, Somerville, MA, 2016.
92. (with J. P. Keating) Moments of zeta and correlations of divisor-sums: IV. Res. Number Theory 2 (2016), Art. 24, 24 pp.
93. (with J. P. Keating) Pair correlation and twin primes revisited. Proc. A. 472 (2016), no. 2194, 20160548, 11 pp.
94. (with J. P. Keating) Averages of ratios of the Riemann zeta-function and correlations of divisor sums. Nonlinearity 30 (2017), no. 10, R67–R80.
95. (with C. Turnage-Butterbaugh) On r -gaps between zeros of the Riemann zeta-function. Bull. Lond. Math. Soc. 50 (2018), no. 2, 349–356.
96. (with S. Bettin, J. Bober, A. Booker, M. Lee, G. Molteni, T. Oliver, D. Platt, and R. Steiner) A conjectural extension of Hecke's converse theorem. Ramanujan J. 47 (2018), no. 3, 659–684.

97. (with J. P. Keating) Moments of zeta and correlations of divisor-sums: V. Proc. Lond. Math. Soc. (3) 118 (2019), no. 4, 729–752.

PHD STUDENTS SUPERVISED:

David Farmer, 1992, Oklahoma State University
Tim Flood, 1993, Oklahoma State University
Sandro Bettin, 2012, University of Bristol

TALKS:

Exeter, England—Journèe Arithmetique — April, 1980
Ann Arbor, Michigan—AMS special session — August, 1980
South Bend, Indiana—AMS special session — Sept., 1981
Austin, Texas—AMS special session — Nov., 1981
University of Texas, Austin— Conference on Analytic Number Theory — July, 1982
University of Rochester—Colloquium — October, 1982
University of Georgia—Colloquium — January, 1983
Arizona State University—Colloquium — February, 1983
Oklahoma State University—Colloquium — March 1983
Institute for Advanced Study—Members’ Seminar — March, 1983
MIT—Number Theory Seminar — April, 1983
Oklahoma State—Analytic Number Theory and Diophantine Problems — June, 1984
Asilomar, California—West Coast Number Theory Conference — Dec., 1984
Luminy, France—Journèes Analytique Theorie des Nombres — Sept., 1985
Arizona State University—Colloquium — Sept., 1986
Oslo, Norway—Selberg Symposium — June, 1987
University of Toronto—Number Theory Seminar — Oct., 1987
Columbia University—Number Theory Seminar — Nov., 1987
Princeton University—Algebra Seminar — Nov., 1987
Stevens Institute of Technology—Colloquium — Nov., 1987
Asilomar, California—West Coast Number Theory Conference — Dec., 1987
University of Melbourne—Colloquium — Jan., 1988
Rochester University—Colloquium — Jan., 1988
Lehigh University—Colloquium — March, 1988
New York University—Number Theory Seminar — April, 1988
University of Colorado—Colloquium and Seminar—Oct., 1988
University of New Mexico—Colloquium—Dec., 1988
Las Vegas, Nevada—West Coast Number Theory Conf.— Dec., 1988
Edmond, OK—One hour invited lecture at MAA meeting— Mar., 1989
Allerton Park, Illinois—Bateman Conference — April, 1989
Maiori, Italy—Invited one-hour, Symposium on Analytic Number Theory—Sept., 1989
Asilomar, California—West Coast Number Theory Conf.— Dec., 1989
Louisville, Kentucky—Special Session in Number Theory, AMS— Jan., 1990
Manhattan, Kansas—AMS Invited One-Hour Speaker, — Mar., 1990
Illinois Number Theory Conference—Plenary speaker—April, 1990
University of Pennsylvania—Algebra Seminar— Oct., 1990

Asilomar, California—West Coast Number Theory Conf.— Dec., 1990
 Institute for Advanced Study— Rutgers-IAS Number Theory Seminar— Mar., 1991
 Orono, Maine—Special Session in Number Theory, AMS— Aug., 1991
 University of Maine—Number Theory Seminar— Aug., 1991
 University of Maine—Colloquium— Aug., 1991
 Kingston, Ontario—Third Meeting of Canadian Number Theory Assoc.— Aug., 1991
 Geneva, Switzerland—One hour invited lecture at Journee Arithmetique—Sept. 1991
 University of Northern Illinois—Special Session of the AMS—May, 1993
 Isaac Newton Institute, Cambridge, England—Number Theory Seminar—June, 1993
 Rutgers University—Colloquium—Oct., 1993
 Institute for Advanced Study— IAS - Princeton Number Theory Seminar—Oct., 1993
 Asilomar, California—West Coast Number Theory Conference—Dec., 1993
 University of Colorado—Number Theory Seminar—Feb., 1994
 Oberwolfach — Analytic Number Theory — March, 1994
 University of Michigan — Number Theory Seminar — May, 1994
 Michigan Tech — Colloquium — May, 1994
 Michigan Tech — Mathematics Banquet Speaker — May, 1994
 San Francisco—Special Session on Mathematics and Education Reform—Jan., 1995
 Allerton Park—Halberstam Conference—May, 1995
 New York—Special Session on Number Theory—March, 1996
 Cal Tech—Number Theory Seminar—January, 1997
 Boulder—Automorphic Forms Workshop—March, 1997
 Stanford University—Number Theory Seminar—October, 1997
 Rutgers University, Number Theory Seminar —Nov., 1997
 Princeton University, Number Theory Seminar —Nov., 1997
 San Jose State University—Colloquium—Feb., 1998
 Philadelphia—AMS Special Session—April, 1998
 Vienna—Conference on the Riemann Hypothesis—Sept., 1998
 Urbana—AMS Special Session—March, 1999
 Macquarie University, Sydney, Australia—Colloquium—Sept., 1999
 Macquarie University, Sydney, Australia—Seminar—Sept., 1999
 University of Southern Queensland—Colloquium—Sept., 1999
 Institute for Advanced Study—Seminar—Oct., 1999
 Asilomar—West Coast Number Theory Conference—Dec. 1999
 Bristol Research Institute—Colloquium—Feb., 2000
 Santa Barbara—AMS Special Session—March, 2000
 Urbana—Millennial Conference on Number Theory—May, 2000
 San Francisco—AMS Special Session—October, 2000
 New York—AMS Special Session—November, 2000
 New Orleans—AMS Special Session—Jan., 2001
 Palo Alto—Automorphic Forms Workshop—March, 2001
 Neuchatel—Meeting of Swiss Math. Soc., 2 lectures—June, 2001
 Bristol—London Math. Society meeting—Sept., 2001
 Bristol—Meeting on Random Matrix theory—Sept., 2001
 Oberwolfach—The Riemann zeta-function —Sept., 2001
 San Diego—MAA Special Session—January, 2002

New York—Zeta-functions and Riemann Hypotheses—June, 2002
 BYU—Colloquium—Oct., 2002
 Salt Lake City—AMS Special Session—October, 2002
 Johns Hopkins—Colloquium—Nov., 2002
 Les Hauches—Winter School on Physics and Number Theory, 3 lectures—March, 2003
 Oberwolfach—Elementary and Analytic Number Theory—March, 2003
 Boulder—AMS Invited One-Hour speaker at the sectional meeting—Oct., 2003
 Ohio State University—Number Theory seminar—Nov., 2003
 University of North Texas—Colloquium—Nov., 2003
 Oklahoma State University—Colloquium—Nov., 2003
 University of Texas—Seminar—Nov., 2003
 Texas A&M University—Seminar—Nov., 2003
 Stanford University—Seminar—Dec., 2003
 University of Nottingham—Seminar—March, 2004
 University of Zurich—Seminar—March, 2004
 Isaac Newton Institute—School on Random Matrix Theory, 4 lectures, March, 2004
 University of Oxford—Seminar—April, 2004
 University of Warwick—Colloquium—April, 2004
 Isaac Newton Institute—L-functions and Random Matrix Theory—July, 2004
 Oberwolfach—Workshop on the Riemann zeta-function—Sept., 2004
 Université de Paris, Orsay—Number Theory seminar—Sept., 2004
 University of Bristol—Colloquium—Sept., 2004
 Evansville, Indiana—MAA Trisection—Keynote speaker—Oct., 2004
 Saratoga, Florida—MAA Sectional meeting—Keynote speaker—Nov. 2004
 Bloomington, Indiana—Colloquium talk—March, 2005
 Göttingen—Gauss & Dirichlet Conference—Invited speaker—June, 2005
 Waterloo—Workshop on Number Theory and RMT—Invited Speaker, June, 2005
 CMS—Waterloo—L-Functions and Algebraic Curves, June, 2005
 CRM—Montreal—L-functions and Related Themes—Invited speaker—Feb., 2006
 St. Louis—AAAS—Million-Dollar Mathematics—Invited Speaker—Feb., 2006
 Bordeaux—Arith. Aspects of RMT and Quantum Chaos—Invited Speaker—April, 2006
 Paris—Probability, Number Theory, and RMT, 3 lectures, May, 2006
 Rochester—School on Number Theory and RMT—Three lectures—June, 2006
 Rochester—Advances in Number Theory and RMT—Invited Speaker—June, 2006
 New York Number Theory Seminar—Nov., 2006
 San Jose—Bay Area Math Adventures—Feb., 2007
 San Francisco—AAAS—Symposium on Primes—Invited Speaker—Feb., 2007
 Trieste—School and conference in analytic number theory—Invited Speaker—May, 2007
 Champaign-Urbana—Number Theory Fest—Invited speaker—May, 2007
 San Jose—Math Fest—Invited MAA speaker—June, 2007
 Dartmouth—Carl T. Prosser Distinguished Lecture—Oct. 2007
 Bristol—Physics seminar—November, 2007
 San Diego—MAA Student Lecture—January, 2008
 Princeton—Selberg Memorial Conference—January, 2008
 Bonn—Hausdorff Institute of Mathematics—January, 2008
 Bristol—Inaugural Lecture—January, 2008

Urbana — Illinois Number Theory conference — Invited speaker—March, 2009
 Syracuse — Graduate Symposium featured speaker — March, 2009
 WPI — Levi Conant Lecture — March, 2009
 BYU — Public Talk and colloquium — April, 2009
 Provo — Summer school, 3 lectures — June, 2009
 Benasque, Spain — Number theory and Physics, invited speaker — July, 2009
 Weihai, China — Invited speaker — August, 2009
 Seoul — Invited speaker — September, 2009
 Baylor — Undergraduate Lecture Series —September, 2009
 Baylor — Colloquium—September, 2009
 Princeton — IAS Special Lecture on 150th anniversary of RH — November, 2009
 San Francisco — JMM, AMD Special Session —January, 2010
 Bath — Colloquium — February, 2010
 Ft. Smith, Arkansas — MAA Court Lecturer — March, 2010
 Weihai — Liching Distinguished Visiting Professor 6 talks — September, 2010
 UCLA— Special session of AMS meeting — October, 2010
 Sonoma State University — Colloquium — November, 2010
 Austin — Number Theory seminar — November, 2010
 Rio de Janeiro — Colloquium at IMPA — May, 2011
 Calgary — Summer school on L-functions, 3 lectures — May, 2011
 Budapest — Turan 100th memorial conference, invited speaker, — August, 2011
 Oberwolfach — Analytic Number Theory meeting, Speaker — August, 2011
 Boston — BU/MIT Number Theory seminar — November, 2011
 Luminy — CIRM Number Theory conference, speaker – January, 2012
 Benasque, Spain— Physics and Number Theory, invited speaker—June, 2012
 Snowbird, Utah — MRC meeting, mentored two groups — June, 2012
 Madison — Mathfest, MAA Student talk — August, 2012
 Oxford — Heath-Brown 60th birthday conference, invited speaker— September, 2012
 Warwick — Symposium to kick off year in number theory, first speaker — Sept, 2012
 New Brunswick — Rutgers Colloquium — November, 2012
 Oxford, Mississippi — AMS Special session speaker — March, 2013
 Guanajuato, Mexico — Special session at Math. Cong. of the Americas — Aug, 2013
 Oberwolfach — Number Theory meeting, speaker — October, 2013
 Pisa — di Georgio Center, Colloquium and 3 seminar — November, 2013
 Luminy — CIRM meeting on Number Theory, speaker — March, 2014
 San Francisco — USF Colloquium — April, 2014
 Chicheley Hall — Royal Society mtg on zeta-functions, invited speaker— May, 2014
 Urbana— Bateman Memorial Conference, invited speaker— June, 214
 Ottawa — Canadian Number Theory Conference, invited plenary lecture— June, 2014
 Princeton—Sarnak 61st birthday conference, invited speaker— December, 2014
 San Antonio— AMS Special Session at JMM— January, 2015

OTHER:

Co-Organized “Analytic Number Theory and Diophantine Problems” Conf., 1984
MER representative for OSU, 1993 – 1997
Director of Okla. State Mathematics and Science coalition, CASMEO, 1991 – 1997
Co-Organized 2 Statewide (Ok.) convocations for mathematics and science, 1992, 1997
Co-Organized and hosted AMS regional conference at OSU, 1994
Member of Board of Advisors, American Institute of Mathematics, 1995 – 1997
Organized “Symposium on Riemann Hypothesis,” 1996
Headed a special taskforce on the Bulletin of the AMS, 1997
AMS central section program committee, 1996 – 1998
MAA Oklahoma-Arkansas speakers’ committee, 1997 - 1999
Oversight committee, Bay Area Math Olympiad, 1999
Co-organized workshop “L-functions and random matrix theory,” May, 2000
Co-founder and co-coach of San Jose Math Circle, 1999 —
Organized 15th annual “Automorphic forms workshop,” March, 2001
Co-organized conference “Zeta-functions and Riemann Hypotheses,” May 2001
Member of the Editorial Board of Journal of Number Theory, Electronic Research
Announcements, and Research in Number Theory
Co-organizer of Program at Newton Institute on Random matrices, Jan. – June, 2004
Co-founder in 2006 of Math Teachers’ Circle network, which now supports 70 MTCs
Co-founder of L-functions and Modular forms database, 2006 (see www.beta.lmfdb.org)
Co-organizer, Banff workshop, July, 2007.
Co-organizer of MSRI special semester on Arithmetic Statistics, Spring, 2011
Prize committees for Robbins Prize (2010–2013) and Conant Prize (2011–2014)
Chaired Committee for selection of 2016 von Neumann Symposium
Co-organizer of special semester on Computational Langlands at ICERM, Fall, 2015.

ADMINISTRATIVE EXPERIENCE:

I served as Head of Mathematics at Oklahoma State University from 1991 to 1997. Some highlights during this time:

Model Department: We were one of 6 departments to receive a site visit from the American Mathematical Society Task Force on Excellence in Mathematics Scholarship. The task force chose to visit OSU, with the purpose of documenting our successful practices, after interviewing more than 200 department heads and 50 deans.

Funding: We received an average of \$700,000 per year in extramural funding for research and education. Almost all of this is from the NSF. About 40% of our faculty have research funded through NSF, compared to a 5% national average. Other grants have been for a computer classroom, development of curriculum materials, dissemination of new calculus materials, faculty enhancement workshops, a special year in Algebraic Geometry, minority programs, research experiences for undergraduates, and many others. In 1996 there were 200 proposals for the “Mathematics Across the Curriculum” initiative. Ultimately, 5 proposals were funded. Of the five proposals funded, OSU was the co-principal investigator on one, and a partner on another.

Growth: Through creative management of resources we maintained a healthy program of visiting faculty to the Mathematics department. Many of our visitors were postdoctoral fellows who

received Ph.D.s and initiated research programs in an area of strength of the Department: Number Theory, Algebraic Geometry, Topology, Analysis, or Representation Theory. These visiting faculty brought fresh ideas to the department, youth, energy, and opportunities for collaboration. Several of these faculty were among the most effective teachers; one even received an award from a student group as outstanding teacher on campus. Our program of visitors and postdocs was one of the strengths of the Mathematics Department.

Curriculum: During my tenure as Head, the department significantly updated the mathematics curriculum from entry level through calculus. The new entry-level program received high praise across campus from administrators, faculty in other departments, advisors, and students.

Outreach: We began an extensive outreach program. This included the High School Mathematics Contest which brought more than 2500 students to campus from 1991–1997, with the result that we recruited many outstanding mathematics majors. Our Putnam team scored its 3 highest ever scores during that time. Also, our Math Counts program for 6–8 graders brought 70 students to campus each week for an enrichment program. We initiated summer programs for students, minority students, and a Woodrow Wilson program for teachers. We offered many workshops for faculty at regional colleges. Many of these were hosted in our Mathematics Learning Resource Center, which is regarded as the model undergraduate mathematics lab in the country.

Awards: Many of our faculty won prestigious awards. Z. Qin won an Alfred P. Sloan Fellowship (the fourth in the department). He also received an Oak Ridge Young Faculty Fellowship. Four of our faculty won teaching awards from the Mathematical Association of America, being designated Outstanding Mathematics Professor in the Oklahoma–Arkansas section. One faculty won the National MAA teaching award. Two faculty won Regents Distinguished Teaching Awards.

Endowments: The James Vaughn Chair of Number Theory became endowed at \$250,000 and was filled with Bernard Dwork, one of the pre-eminent number theorists of the 20th century. William Jaco was named the first Grayce B. Kerr Professor of Mathematics (a \$1 million chair). The first three Southwest Bell Professors (\$250,000 chair) were appointed. We received new endowments for 2 graduate fellowships, the Kotlarski Prize in Probability, and the Stuart and Jenny Reeves' Education Fund.

Conferences: In the period 1991–1997, the department hosted an American Mathematical Society regional conference (300 visitors), 2 statewide convocations for leaders in mathematics and science education (CASMEO, 90 visitors each), two workshops in Algebraic Geometry (60 visitors each), as well as at least 12 workshops on various educational issues ranging in size from 30 to 50. The Department received much positive feedback about how well organized our conferences are.

I have served as Executive Director of the American Institute of Mathematics (AIM) since 1997. Some of the accomplishments of AIM during this time include:

Setting up the office space in Palo Alto. AIM is a non-profit organization with the goal of furthering the frontiers of mathematical research through focused collaborative initiatives. My initial duties were to set-up a facility in Palo Alto conducive for mathematical research.

Organizing focused collaborative research projects. I assisted with setting up 18 long-term projects with specific mathematical goals. One of these projects culminated in the proof of the “Perfect Graph Conjecture” by Chudnovsky, Robertson, Seymour, and Thomas. Another resulted in the solution of the Mumford Conjecture by Madsen and Weiss. The “Atlas of Lie Groups” project funded through AIM recently had a large public success when they announced that they had found all of the Kazhdan-Lustzig-Vogan polynomials for the real split incarnation of the exceptional Lie Group E_8 .

AIM Preprint server. The results accomplished within these focused projects are posted in a collection of research papers on the AIM web-pages (www.aimath.org). To date over 1000 papers have been written.

AIM Five-Year Fellow. I started a program to recruit talented new PhDs to receive Five-Year Fellowships from AIM. Thirteen Fellows were named between 1998 and 2010: Kannan Soundararajan, Henry Cohn, Vadim Kaloshin, Leonhard Ng, Francis Calegari, Michael Develin, Jacob Lurie, Joel Kamnitzer, Elizabeth Meckes, Yi Ni, Travis Schedler, Kirsten Wickelgren, and Melanie Matchett Wood.

AIM-Stanford public lecture series. Between 1998 and 2003 we had an annual series of public lectures held on the Stanford campus in a concert hall seating more than 700 people. The speakers were Andrew Wiles, John H. Conway, Brian Greene, Sylvia Nasar, and Hendrik Lenstra and were attended by a total of more than 3300 people.

Outreach activities. AIM has been involved in co-founding the San Jose Math Circles, sponsoring the Bay Area Math Adventures, initiating and running the Math Counts program in Morgan Hill, and founding the Math Teachers’ Circle program which now has more than 125 groups across the country.

The AIM Research Conference Center (ARCC). In 2002, AIM was awarded funding for ARCC as one of seven national NSF Math Institutes. The mission of ARCC is to further mathematical research through a series of focused workshops. ARCC staff have worked to develop a successful format for these week-long workshops. So far we have held 338 such workshops. In 2007 we started the SQuaREs (Structured Quartet Research Ensembles) program. This program supports small group of researchers to have three one-week visits to work at AIM with the visits separated by approximately one year. There have been 375 such meetings so far.

Ongoing developmental and fund-raising activities include raising money for the operation of AIM and ARCC, and building a mathematics library (we currently have over 45,000 books and journals and over 200,000 reprints catalogued into the largest reprint collection in the world).

In late 2014 AIM moved to a new location with upgraded facilities in the corporate headquarters of Fry’s Electronics.