

DAVID H. BAILEY
Updated 6 March 2024

Research website: <https://www.davidhbailey.com>

Email: davidhbailey20@gmail.com

ORCID: <https://orcid.org/0000-0002-7574-8342>

Affiliation: Senior Scientist (retired), Lawrence Berkeley National Laboratory

Academic background:

1. B.S. 1972, mathematics, Brigham Young University
2. Ph.D. 1976, mathematics, Stanford University

Major professional society awards (most recent listed last):

1. Sidney Fernbach Award, IEEE Computer Society (IEEE CS), 1993
2. Chauvenet Prize, Mathematical Association of America (MAA), 1993
3. Merten Hesse Prize, Mathematical Association of America (MAA), 1993
4. Gordon Bell Prize, Association for Computing Machinery (ACM), 2008
5. SC Test of Time Award (ACM and IEEE CS), 2015
6. Levi L. Conant Prize, American Mathematical Society (AMS), 2017

Bailey is the only person to have received major awards from all four of these professional societies: ACM, AMS, IEEE CS and MAA.

Other significant awards and designations (most recent listed last):

1. *1994 H. Julian Allen Award*. This award is presented annually by NASA Ames Research Center for outstanding research work and papers. See https://history.arc.nasa.gov/awards_h-jallen.htm
2. *CSE Algorithms of the Century*. The PSLQ algorithm, which was defined in a paper co-authored by Bailey, Helaman Ferguson and Stephen Arno, was named one of the ten “algorithms of the century” in 2000 by the editors of *Computing in Science and Engineering*.
3. *Finalist for the 2006 Edge of Computation Prize*. This award was granted in 2006 for a leading-edge contribution in computational science. The list of 48 finalists included many of the world’s most distinguished figures in modern computer science and technology. See <https://www.edge.org/conversation/the-edge-of-computation-science-prize>.
4. *2017 Prose award* (Honorable Mention) in category “Textbook/Best in Physical Sciences and Mathematics.” Bailey co-authored a chapter in the book *Reproducibility: Principles, Problems, Practices and Prospects*. See <https://proseawards.com/winners/2017-award-winners/>.

Overview of research work:

High performance computing. Bailey is a leading figure in the field of high-performance scientific computing, with one book and over 100 published paper in this area. His paper “The NAS parallel benchmarks” (co-authored with several colleagues at NASA Ames Research Center) is widely cited in performance studies of scientific computer systems. His paper “FFTs in external or hierarchical memory” presented a technique for performing the fast Fourier transform (FFT) on parallel and hierarchical memory computers that is now the basis of many FFT implementations on modern computer systems. He has received the Sidney Fernbach Award from the IEEE Computer Society (1993), the Gordon Bell Prize from the Association for Computing Machinery (2008), and the Test of Time Award from the ACM/IEEE Supercomputing Conference (2015).

Computational and experimental mathematics. Bailey is also a leading figure in the field of computational and experimental mathematics. He has written eight books and over 100 papers in this area, together with several widely used high-precision computation packages. Many of his books and papers were co-authored with Jonathan M. Borwein of the University of Newcastle, Australia (deceased 2016). Bailey’s best-known paper in this area, “On the rapid computation of various polylogarithmic constants,” co-authored with Peter Borwein (Jonathan Borwein’s brother) and Simon Plouffe, describes a new formula for pi that permits one to directly calculate binary digits of pi beginning at an arbitrary starting position. In two other papers, Bailey and Richard Crandall (deceased 2012) demonstrated a connection between these formulas and a fundamental question about digit randomness. Bailey has received the Chauvenet Prize and the Merten Hesse Prize from the Mathematical Association of America (1993), and the Levi L. Conant Prize from the American Mathematical Society (2017).

Financial mathematics. Bailey, together with Jonathan Borwein (deceased), Marcos Lopez de Prado and Jim Qiji Zhu, have written a series of papers on mathematical finance. Their best-known paper in this area, “Pseudo-mathematics and financial charlatanism: The effects of backtest overfitting on out-of-sample performance,” has attracted significant interest in the field – see press reports below for details.

Other professional activities. In addition to the technical papers mentioned above, Bailey has authored or co-authored over 300 less formal articles in venues such as the *Huffington Post*, the *Conversation* and various blogs. Bailey operates the Math Scholar blog, devoted to mathematics, computing and modern science, and the Mathematical Investor blog, devoted to financial mathematics and abuses of mathematics in the field.

See “Books” below for a list of published books, and “Publications” for a full list of over 600 technical papers and articles.

Previous affiliations:

1972-1976: Stanford University, Stanford, CA. Bailey taught courses in calculus to undergraduate students, in addition to his studies in probability and ergodic theory leading to the Ph.D.

1976-1980: Department of Defense, Washington, DC. Bailey worked on highly mathematical and computationally intensive problems of interest to the federal government.

1980-1982: TRW, Inc., Sunnyvale, CA. Bailey developed computational software for a defense electronics contractor.

1982-1984: SRI International, Menlo Park, CA. Bailey worked on a defense-funded project.

1984-1998: NASA Ames Research Center, Moffett Field, CA. Bailey worked for a NASA supercomputer center with hundreds of users in the U.S. and elsewhere. He published papers on numerical algorithms, parallel computing, computing technology and performance analysis. He also supervised a research group in computational algorithms and applications. He was a lead author of the NAS Parallel Benchmarks, which was developed to assess and compare the sustained performance of scientific supercomputers. Bailey also participated in (and in one case personally directed) several large supercomputer procurements.

Professional community activities (since 1989; most recent listed last):

1. Program Co-Chair, 1988 International Conference on Parallel Processing (1989).
2. Deputy Program Chairman, Supercomputing Conference (1990).
3. Program Committee, International Conference on Supercomputing (1991-1993).
4. Editor, *IEEE Transactions on Parallel and Distributed Computing* (1990-1993).
5. Program Committee, SIAM Parallel Processing Conference (1995).
6. Chair, Petaflops Algorithm Workshop (1997).
7. Tutorial Committee, Supercomputing Conference (1997).
8. Board of Governors, Institute for Mathematics and Applications (1996-1998).
9. Sidney Fernbach Award Committee (1995-1998); Chair (1996-1998).
10. Chair, MSRI Parallel Symbolic Computation Workshop (1998).
11. Governing Board, Supercomputing SIG, Association for Computing Machinery (1993-1999).
12. Program Committee, Petaflops-2 Conference (1999).
13. Review Panel, DoE ASCI University Alliance program (1998-2000).
14. Review Committee, NSF Information Technology Research proposal review panel (2000).
15. Program Committee, International Conference on High Performance Computing (2000).
16. Vice Chair, International Parallel and Distributed Processing Symposium (2001).
17. Program Committee, IEEE Conference on Computer Arithmetic (2001-2003).
18. Board of Editors, *International Journal of High Speed Computing* (1992-2004).
19. Co-Chair, Experimental Mathematics Workshop (2004).
20. Co-Chair, "Experimental Mathematics in Action," two-day MAA short course (2006).

21. RIACS Science Council (1999-2007); Chairman (2001-2006).
22. Program Committee, Intl. Conf. on Supercomputing (2007).
23. Program Committee, Intl. Conf. on Parallel and Distributed Computing (2007-2008).
24. Program Committee, Conference on Real Numbers and Arithmetic (2008).
25. Seymour Cray Prize Committee (2002-2007); Chairman (2005-2007).
26. Program Committee, SciDAC 2009 (2009).
27. Program Committee, IEEE International Parallel and Distributed Processing Symposium (IPDPS) (2010).
28. Program Committee, International Workshop on Adaptive Self-Tuning Computing Systems for the Exaflop Era (EXADAPT) (2011, 2012).
29. ICERM Workshop on Reproducibility in Computational and Experimental Mathematics (2012).
30. Board of Editors, *Journal of Supercomputing* (1994-2012).
31. Advisory Board, *International Journal of Computational Science and Engineering* (2006-2012).
32. ACM Gordon Bell Prize Committee (1996-2007, 2012, Chair 1998-2002, 2007, 2013).
33. Technical Papers Committee, Supercomputing Conference (1991-1992, 1997-1999, 2002, 2012-2013, Chair 1990, 1999)
34. Steering Committee, Supercomputing Conference series (2009-2014).
35. ICERM Workshop on Challenges in 21st Century Experimental Mathematical Computation, co-organizer (2013-2014).
36. Symposium on Reproducibility: Principles, Problems, Practices, Zurich, Switzerland, co-organizer (2014).
37. Program Committee, 23rd IEEE Symposium on Computer Arithmetic (ARITH23) (2015-2016).
38. Board of Editors, *Notices of the American Mathematical Society* (2009-2016).
39. Tutorial Committee, Supercomputing Conference (1993-1994, 2011, 2016).
40. Board of Editors, *IEEE Transactions on Mathematical Software* (2013-2019).
41. Board of Editors, *Experimental Mathematics* (2016-2022).
42. Co-organizer, ICERM Workshop on Variable Precision Computing (2019-2020).
43. Test of Time Committee, Supercomputing Conference (2012-2013, 2018-2020), chair (2021).
44. SC22 Workshop Committee Member (2022).
45. Workshop on Software Correctness for HPC Applications (2023).
46. ACM Conference on Reproducibility and Replicability (REP'24) (2024)
47. Associate Editor, *American Mathematical Monthly* (2016-present).
48. Board of Editors, *The Ramanujan Journal* (2020-present).
49. Board of Editors, *Journal of Experimental Mathematics* (2023-present).

Press reports mentioning Bailey (since 2001; most recent listed last):

1. Charles Seife, "Pi keeps 'em guessing," *ScienceNow*, 27 Jul 2001: [HTML](#)
2. David Whitehouse, "How random is Pi?" *British Broadcasting Company*, 23 July 2002: [HTML](#)
3. Charles Seife, "Randomly distributed slices of Pi," *Science*, 3 Aug 2001, pg. 793: [HTML](#)
4. Ivars Peterson, "Pi al a mode," *Science News*, 1 Sep 2001, pg. 136-137 (cover story): [HTML](#)

5. W. Wayt Gibbs, "A digital slice of pi," *Scientific American*, May 2003: [HTML](#)
6. Erica Klarreich, "Math lab: Computer experiments are transforming mathematics," *Science News*, (Apr 24, 2004), pg. 266-268: [HTML](#)
7. J. L. Nazareth, "On algorithmic science and engineering: An emerging core discipline of computing," *SIAM News*, 24 March 2006: [HTML](#)
8. Brian Hayes, "Foolproof," *American Scientist*, vol. 95, no. 1 (Jan-Feb 2007), pg. 10-15: [HTML](#)
9. [no author] "Have your pi and eat it too," *Daily Princetonian*, 14 Mar 2008: [HTML](#)
10. Elizabeth Landau, "On Pi Day, one number 'reeks of mystery'," *CNN*, 12 Mar 2010: [HTML](#)
11. David Shiga, "New pi record exploits Yahoo's computers," *New Scientist*, 17 Sep 2010: [HTML](#)
12. [no author] "New book examines scientific application performance tuning," *Inside HPC*, 14 Mar 2011: [HTML](#)
13. [no author] "Today is Pi Day: Celebrating the world's favorite number," *Berkeley Lab Today*, 14 Mar 2011: [HTML](#)
14. Linda Vu, "Supercomputer Cracks 'Impossible' Calculation," *Berkeley Lab Computing Sciences*, 25 Apr 2011: [HTML](#)
15. Linda Vu, "Supercomputers crack sixty-trillionth binary digit of Pi-Squared," *U.S. Department of Energy*, 28 Apr 2011: [HTML](#)
16. Linda Vu, "Experimental mathematics: Computing power leads to insights," *Berkeley Lab Computing Sciences*, 13 Oct 2011: [HTML](#)
17. [no author] "Experimental mathematics: Computing power leads to insights," *Science Daily*, 13 Oct 2011: [HTML](#). Similar articles appeared in [Eurekalert](#), [Physorg](#) and [NewsWise](#).
18. Christian Perfect, "WLTm real number. Must be normal and enjoy long walks on the plane," *Aperiodical*, 7 Jun 2012: [HTML](#)
19. Samuel Arbesman, "A random walk with Pi," *Wired*, 12 Jun 2012: [HTML](#)
20. Garireo Takahashi Tomoko (trans.), "Random walk in Pi visualization" (Japanese translation of previous item), *Wired Japan*, 15 Jun 2012: [HTML](#)
21. [no author] "Algebra is essential in a 21st century economy," *Today at Berkeley Lab*, 13 Aug 2012: [HTML](#)
22. Jean-Paul Delahaye, "Etre normal? Pas si facile!," *Pour la Science* (French edition of *Scientific American*), Dec 2012, pg. 126-131: [HTML](#)
23. Natalie Wolchover, "In computers we trust?," *Simons Foundation*, 22 Feb 2013: [HTML](#)
24. Natalie Wolchover, "As math grows more complex, will computers reign?," *Wired*, 4 Mar 2013: [HTML](#)
25. Lisa M. Krieger, "Supercomputers could generate warning system for stock market crashes," *San Jose Mercury News*, 14 Apr 2013: [HTML](#)
26. Jeffrey Kutler, "The supercomputer solution," *Institutional Investor*, 25 Apr 2013: [HTML](#)
27. [no author] "Just in time for Pi Day," *Newswise*, 4 Mar 2014: [HTML](#)
28. [no author] "Should you trust your financial advisor? Pseudo-mathematics and financial charlatanism," *ScienceDaily*, 10 Apr 2014: [HTML](#)
29. Saijel Kishan, "Computer models often use unsound math, researchers say," *Bloomberg News*, 11 Apr 2014: [HTML](#)

30. Stephen Foley, "Ban pseudo-maths from investing," *Financial Times*, 16 Apr 2014; [HTML](#)
31. Brendon Conway, "Is a too-perfect ETF backtest a fraud?," *Barrons*, 17 Apr 2014; [HTML](#)
32. Cathy Scott, "Interview with David Bailey," *Institutional Investor Journals*, 23 Apr 2014; [HTML](#)
33. Ryan Jacobs, "The dangerous mathematical con of hedge funds and financial advisers," *Pacific Standard*, 28 Apr 2014; [HTML](#)
34. John Rekenthaler, "Voodoo investment strategies: Mathematicians on the attack," *Morningstar*, 8 May 2014; [HTML](#)
35. Jason Zweig "Huge returns at low risk? Not so fast," *Wall Street Journal*, 27 Jun 2014; [HTML](#)
36. Michael P. Regan, "Beware overfitting models even if they win baseball bets," *Bloomberg News*, 30 Oct 2014; [HTML](#)
37. Brett Steenbarger, "Do market prophets bring market profits?," *TraderFeed blog*, 03 Dec 2014; [HTML](#)
38. Shawn Langlois, "This 'hideously expensive' market has given the 'show horse' pundits fits," *MarketWatch*, 04 Dec 2014; [HTML](#)
39. [no author] "Fiddling with figures," *Automated Trader*, Winter 2015, pg. 53-58; [HTML](#)
40. Campbell R. Harvey and Yan Liu, "Evaluating trading strategies," *Journal of Portfolio Management*, which cites our work, featured in "False hope," *Economist*, 19 Feb 2015; [HTML](#)
41. Bradley Hope, "How computers trawl a sea of data for stock picks," *Wall Street Journal*, 1 Apr 2015; [HTML](#)
42. [no author] "SC15 selects Numerical Aerodynamic Simulation program for the Test of Time Award," *Reuters*, 20 May 2015; [HTML](#). Similar report appeared in [Business Wire](#).
43. Nathan Vardi, "Rich formula: Math and computer wizards now billionaires thanks to quant trading secrets," *Forbes*, 29 Sep 2015; [HTML](#)
44. Brett Steenbarger, "How we fall for the greatest con job of all," *Forbes*, 25 Dec 2015; [HTML](#)
45. [no author] "Why smart beta funds will disappoint?," *CXO Advisory Group*, 18 Mar 2016; [HTML](#)
46. Kevin Knudson, "Everything you wanted to know about Pi, Part 5: A formula for finding any digit," *Forbes*, 13 May 2016; [HTML](#)
47. Alexander Campbell, "Research uncovers new sources of financial model risk," *Risk.net*, 20 May 2016; [HTML](#)
48. Saijel Kishan, "Six degrees of quant: Kevin Bacon and the Erdos number mystery," *Bloomberg*, 11 Nov 2016; [HTML](#)
49. Mike Breen and Annette Emerson, "David Bailey, Jonathan Borwein, Andrew Mattingly, and Glenn Wightwick to Receive 2017 AMS Conant Prize," American Mathematical Society, 2 Dec 2016; [HTML](#)
50. Peter Coy, "Lies, damn lies and financial statistics," *Bloomberg* 6 Apr 2017; [HTML](#)
51. Brett Steenbarger, "Will quant blow up?," *Trader Feed*, 8 May 2017; [HTML](#)
52. Brett Steenbarger, "3 keys to winning in financial markets," *Forbes*, 28 May 2017; [HTML](#)

53. [no author] "Silver Bullet Band: (Past awardees)," *DashOfInsight.com*, 20 May 2017; [HTML](#)
54. Larry Swedroe, "Swedroe: Grading the forecasters," *ETF.com*, 28 Jul 2017; [HTML](#)
55. Brett Steenbarger, "The growing crisis in modern finance," *Forbes*, 25 May 2018; [HTML](#)
56. [no author] "Go Fact Yourself Bonus Episode with Ross Blocher and Carrie Poppy," Maximum Fun, 21 Mar 2019; [HTML](#)
57. Larry Swedroe, "Swedroe: Measuring value in forecasts," *ETF.com*, 20 May 2019; [HTML](#)

Presentations (since 2009; most recent listed last):

1. "High-Precision Arithmetic and Experimental Mathematics," presentation to Sun Microsystems, Berkeley, CA (Jan 2009). [PDF](#)
2. "High-Precision Numerical Integration on High-Performance Computers," High-Dimensional Approximation 2009 (HDA'09), invited talk, Sydney, Australia (Feb 2009). [PDF](#)
3. "Experimental Mathematics, Multicore Processors and Highly Parallel Computing," SIAM Computational Science and Engineering Conference, invited talk, Miami, FL (Mar 2009). [PDF](#)
4. "High-Precision Arithmetic and Mathematical Physics," invited lecture at Computer Algebra and Particle Physics (CAPP) school, DESY, Zeuthen, Germany (Mar 2009); similar talk given at ETH-Zurich, Zurich, Switzerland (Apr 2009). [PDF](#)
5. "High-Precision Arithmetic and Experimental Mathematics," invited seminar talk, Grinnell College, Grinnell, Iowa (Apr 2009): [PDF](#)
6. "High-Precision Arithmetic and Experimental Mathematics," invited talk, East Coast Computer Algebra Day, Kingstown, RI (May 2009): [PDF](#)
7. "High-Precision Arithmetic and Mathematical Physics," invited lecture, ENRAGE09, Max-Planck Institute, Dresden, Germany (May 2009): [PDF](#)
8. "Misleading Performance Claims in Parallel Computations," invited talk, 2009 Design Automation Conference, San Francisco (Jul 2009): [PDF](#)
9. "Computing: The Third Mode of Scientific Discovery," invited convocation talk, Grinnell College, Grinnell, Iowa (Apr 2009); updated version given at University of Newcastle, Australia (Aug 2009): [PDF](#)
10. "Experimental Mathematics Meets Mathematical Physics," invited lecture, CARMA Workshop on Multidimensional Numerical Integration and Special Function Evaluation, University of Newcastle, Australia (Aug 2009); also given at Macquarie University (Dept. of Mathematics), Sydney, Australia (Aug 2009); updated version presented to Fields Institute Workshop on Experimentation in Number Theory, Simon Fraser University, Burnaby, BC Canada (Sep 2009): [PDF](#)
11. "Experimental Mathematics, Multicore Processors and Highly Parallel Computing," University of Sydney (Dept. of Mathematics), Sydney, Australia, invited seminar (Sep 2009), also given at Macquarie University (Dept. of Electrical Engineering), Sydney, Australia (Sep 2009). [PDF](#)
12. "Computing as the Third Mode of Scientific and Mathematical Discovery," University of Delaware (Dept. of Computer Science), Wilmington, DE, invited seminar (Mar 2010), also

- given as keynote address at SharcNet Users Group Meeting, Toronto, Canada (May 2010); also given at the Barcelona Supercomputer Center (Jun 2010). [PDF](#)
13. "High-Precision Computation: Mathematical Physics and Dynamics," Joint SIAM/RSME-SCM-SEMA Meeting on Emerging Topics in Dynamical Systems and Partial Differential Equations, minisymposium talk Barcelona, Spain (June 2010). [PDF](#)
 14. "High-Precision, Highly Parallel Numerical Integration," University of Zaragoza (Dept. of Mathematics), Zaragoza, Spain, invited seminar (Jun 2010). [PDF](#)
 15. "A Mathematical and Data-Driven Approach to Cybersecurity," SIAM Annual Conference, minisymposium talk, Pittsburgh, PA (Jul 2010). [PDF](#)
 16. "High-Precision Numerical Integration and Experimental Mathematics," University of Newcastle (CARMA center), Newcastle, Australia (18 Aug 2010). [PDF](#)
 17. "The PSLQ Algorithm: Techniques for Efficient Computation," University of Newcastle (CARMA center), Newcastle, Australia (24 Aug 2010). [PDF](#)
 18. "Hand-to-Hand Combat with Thousand-Digit Integrals," Western Number Theory Conference, Provo, UT (17 Dec 2010). [PDF](#)
 19. "12 Ways to Fool the Masses: Fast Forward to 2011," Manycore and Accelerator-based High-performance Scientific Computing Workshop, University of California, Berkeley (26-29 Jan 2011). [PDF](#)
 20. "A Quartically Convergent Square Root Algorithm" (talk on Indian mathematics), Workshop on Computational and Analytical Mathematics in Honour of Jonathan Borwein's 60th Birthday, Simon Fraser University, Burnaby, BC, Canada (16-20 May 2011). [PDF](#)
 21. "Performance Tuning of Science Applications," Discovery 2015: HPC and Cloud Computing Workshop, Berkeley, CA (15-24 Jun 2011). Also given at Extreme Computing and Its Applications for the Nuclear Physics/Applied Mathematics/Computer Science Interface, Seattle, WA (28-29 Jun 2011). [PDF](#)
 22. "Creationism and Intelligent Design: False Friends," International Society for the History, Philosophy, and Social Studies of Biology (ISHPSSB 2011), Salt Lake City, UT (10-15 Jul 2011). [PDF](#)
 23. "Performance Research and the SUPER Project," FastMath Workshop, Livermore, CA (7-8 Nov 2011). [PDF](#)
 24. "Nonnormality of the Stoneham Constants," West Coast Number Theory Conference, Pacific Grove, CA (17 Dec 2011). [PDF](#)
 25. "Normal and Nonnormal Mathematical Constants," University of Newcastle Mathematics Colloquium, Newcastle, NSW, Australia, 29 Aug 2012. [PDF](#)
 26. "Hand-to-Hand Combat with Thousand-Digit Integrals," Workshop on Computational and Analytical Mathematics in Honour of Jonathan Borwein's 60th Birthday, Simon Fraser University, Burnaby, BC, Canada (16-20 May 2011); updated version at University of Newcastle Access Grid Colloquium, Newcastle, NSW, Australia (3 Sep 2012). [PDF](#)
 27. "High-precision Computation and Reproducibility," Reproducibility in Computational and Experimental Mathematics (ICERM workshop), Brown University, Providence, RI (9-14 Dec 2012). [PDF](#)
 28. "Lattice Sums Arising from the Poisson Equation," West Coast Number Theory Conference, Pacific Grove, CA (16-20 Dec 2012). [PDF](#)

29. "Walking on Real Numbers," West Coast Number Theory Conference, Pacific Grove, CA (16-20 Dec 2012). [PDF](#)
30. "Computational Discovery of Number Theory Identities for Mathematical Physics Integrals," AMS-MAA-SIAM Annual Joint Meeting, San Diego, CA (10-14 Jan 2013). [PDF](#)
31. "High-Precision Computation: Applications and Challenges," U. C. Davis Computer Science seminar, Davis, CA (7 Mar 2013). [PDF](#)
32. "High-Precision Computation: Applications and Challenges," keynote talk, 21st IEEE International Symposium on Computer Arithmetic, Austin, TX (7-10 Apr 2013). [PDF](#)
33. "PSLQ: An algorithm to discover mathematical identities," U.C. Davis Mathematics Seminar, Davis, CA (16 Apr 2013). [PDF](#)
34. "Numerical Reproducibility in High-Performance Computing," International Supercomputing Conference, Leipzig, Germany (16-20 Jun 2013). [PDF](#)
35. "Conquering Numerical Error," Mathematics of Planet Earth, Melbourne, Australia (8-12 Jul 2013). [PDF](#)
36. "Lattice sums arising from the Poisson equation," U.C. Berkeley Number Theory Seminar, Berkeley, CA (11 Sep 2013). [PDF](#)
37. "Twelve ways to fool the masses: Fast forward to 2013," Scalable Approaches to High Performance and High Productivity Computing (ScalPerf13), Bertinoro, Italy (22--27 Sep 2013). [PDF](#)
38. "Conquering Numerical Error," Supercomputing 2013, Session on High-Precision Arithmetic, Denver, CO (20 Nov 2013). [PDF](#)
39. "Computation and theory of extended Mordell-Tornheim-Witten sums," West Coast Number Theory Conference, Pacific Grove, CA (15-18 Dec 2013). [PDF](#)
40. [with Marcos Lopez de Prado] "How to spot backtest overfitting," Battle of the Quants, New York City, 25 Mar 2014. [PDF](#)
41. "Are the digits of pi random?," U.C. Davis Math Club, Davis, CA (30 Apr 2014). [PDF](#)
42. "Using high-precision arithmetic to conquer numerical error," U.C. Davis Mathematics Seminar, Davis, CA (14 May 2014). [PDF](#)
43. "Fooling the masses: Reproducibility in high-performance computing," ACM International Conference on Computing Frontiers 2014, Cagliari, Italy (20-22 May 2014). Similar talk given at the Australian Mathematical Sciences Institute National Seminar Series, University of Newcastle, Australia (15 Jul 2014). [PDF](#)
44. "Big data computing: Science or pseudoscience?," Australian Mathematical Sciences Institute National Seminar Series, University of Newcastle, Australia (11 Jul 2014). [PDF](#)
45. "Scientific integrity in mathematical finance," Workshop on Optimization, Nonlinear Analysis, Randomness and Risk, University of Newcastle, Australia (12 Jul 2014). [PDF](#)
46. "Computational challenges in experimental mathematics," Challenges in 21st Century Experimental Mathematical Computation (ICERM workshop), Brown University (22 Jul 2014). [PDF](#)
47. "Reproducibility in scientific computing," Reproducibility: Principles, Practices, Problems, Zurich, Switzerland (29 Sep 2014). [PDF](#)
48. "Expectations on fractal sets," West Coast Number Theory Conference, Pacific Grove, CA (16-19 Dec 2014). [PDF](#)

49. "Financial mathematics and big data computing: Science and pseudoscience," invited colloquium talk, ETH Zurich, Switzerland (25 Mar 2015). [PDF](#)
50. "Petascale computing and high-precision arithmetic: Applications and challenges," invited colloquium talk, ETH Zurich, Switzerland (26 Mar 2015). [PDF](#)
51. "A thread-safe, high-performance arbitrary precision package," colloquium talk, University of Newcastle, Australia (12 Mar 2015). [PDF](#)
52. "Backtesting in the world of quantitative finance: Limitations, opportunities and scrutiny needed," Quant Invest 2015, London, England (30 Sep 2015). [PDF](#)
53. "Discovery of large Poisson polynomials using a new arbitrary precision package," U.C. Berkeley numerical analysis seminar, Berkeley, CA (13 Oct 2015). Similar talk given at U.C. Davis Computer Science colloquium (5 Nov 2015). [PDF](#)
54. "Numerical reproducibility in high-performance computing," CARMA workshop on reproducibility, University of Newcasatle, Australia (13 Nov 2015). [PDF](#)
55. "Reproducibility and statistical overfitting in mathematical finance," Workshop on Mathematical Aspects of Behavioural Economics and Finance, University of Newcastle, Australia (13 Nov 2015). [PDF](#)
56. "Big data and its sins," Workshop on Mathematical Aspects of Behavioural Economics and Finance, University of Newcastle, Australia (14 Nov 2015). [PDF](#)
57. "The NAS Parallel Benchmarks: History and impact," Test of Time Award talk, Supercomputing 2015, Austin, TX (17 Nov 2015). [PDF](#)
58. "Numerical reproducibility in high-performance computing," Workshop on Numerical Reproducibility, Supercomputing 2015, Austin, TX (20 Nov 2015). [PDF](#)
59. "Computer discovery of large Poisson polynomials with 51,000-digit computations," West Coast Number Theory Symposium, Pacific Grove, CA (16 Dec 2015). [PDF](#)
60. "Computer discovery of large Poisson polynomials," U.C. Berkeley Number Theory Seminar, Berkeley, CA (16 Mar 2016). [PDF](#)
61. "Computer discovery and analysis of large Poisson polynomials," Computationally Assisted Mathematical Discovery and Experimental Mathematics, London, Ontario, Canada (12-15 May 2016). [PDF](#)
62. "Computer discovery and analysis of large Poisson polynomials using 64,000-digit arithmetic," Number Theory Down Under, Newcastle, Australia (23-26 Sep 2016). [PDF](#)
63. "Mathematics, computing and the acceleration of scientific progress," Hamilton College Plant Lecture, Clinton, NY (3 Nov 2016). [PDF](#)
64. "Stock portfolio design and backtest overfitting," Hamilton College, Clinton, NY (3 Nov 2016). [PDF](#)
65. "Computer discovery of new mathematical facts and formulas," Hamilton College, Clinton, NY (3 Nov 2016). [PDF](#)
66. "On the normality of Stoneham numbers, π and $\log(2)$," Normal Numbers: Arithmetic, Computational and Probabilistic Aspects, Erwin Schrodinger Institute, University of Vienna, Austria (14-18 Nov 2016). [PDF](#)
67. "Computation and experimental evaluation of Mordell-Tornheim-Witten sum derivatives," West Coast Number Theory Conference, Pacific Grove, CA (16-20 Dec 2016). [PDF](#)

68. "Computer discovery and analysis of large Poisson polynomials using 64,000-digit arithmetic," Jonathan Borwein Remembrance Day, Paris, France (10 Feb 2017). [PDF](#)
69. "Experimental mathematics and the omega function," mathematics seminar, U.C. Davis (17 Apr 2017). [PDF](#)
70. "Fooling the masses in 2017: Why the scientific computing community must still be vigilant," IPDPS-17, Orlando, FL (1-2 Jun 2016). [PDF](#)
71. "Computation and analysis of arbitrary digits of Pi and other mathematical constants," Levi Conant Prize lecture, Worcester Polytechnic Institute, Worcester, MA (16 Sep 2017). [PDF](#)
72. "Computer discovery and analysis of large Poisson polynomials," keynote, Jonathan Borwein Commemorative Conference, University of Newcastle, Newcastle, Australia (25-30 Sep 2017). [PDF](#)
73. "Stock portfolio design and backtest overfitting," Jonathan Borwein Commemorative Conference, University of Newcastle, Newcastle, Australia (25-30 Sep 2017). [PDF](#)
74. "What is experimental mathematics?," All-day seminar on experimental mathematics, University of Newcastle, Newcastle, Australia (3 Oct 2017). [PDF](#)
75. "Pi and normality," All-day seminar on experimental mathematics, University of Newcastle, Newcastle, Australia (3 Oct 2017). [PDF](#)
76. "High-precision arithmetic and PSLQ," All-day seminar on experimental mathematics, University of Newcastle, Newcastle, Australia (3 Oct 2017). [PDF](#)
77. "Experimental mathematics and integration," All-day seminar on experimental mathematics, University of Newcastle, Newcastle, Australia (3 Oct 2017). [PDF](#)
78. "Ancient Indian mathematics," All-day seminar on experimental mathematics, University of Newcastle, Newcastle, Australia (3 Oct 2017). [PDF](#)
79. "Computer discovery and analysis of large Poisson polynomials," All-day seminar on experimental mathematics, University of Newcastle, Newcastle, Australia (3 Oct 2017). [PDF](#)
80. "Backtest overfitting in stock fund design and market prediction," Risk Management Seminar, University of California, Berkeley (17 Oct 2017). [PDF](#)
81. "Getting financial predictions right," MediaX Conference, Stanford University, Stanford, CA (1 Nov 2017). [PDF](#)
82. "Fine tuning and Fermi's paradox," A Fractured Universe? Fundamental Physics, Symmetry and Life, University of Sydney, Sydney, Australia (30 Nov - 1 Dec 2017). [PDF](#)
83. "High-performance computing (and the dangers of overfitting) in finance," Artificial Intelligence and Data Science: Capital Markets, New York City, NY (6-7 Dec 2017). [PDF](#)
84. "Computation of the omega function," West Coast Number Theory Conference, Pacific Grove, CA (16-20 Dec 2017). [PDF](#)
85. "Variable precision in modern floating-point computing," ARM seminar, Cambridge, UK (19 Sep 2018). [PDF](#)
86. "Quantum computing performance: Standards now or scandals later?," D-Wave seminar, Burnaby, BC, Canada (20 Jan 2019). [PDF](#)
87. "Reproducibility and variable precision computing," Computational Reproducibility at Exascale 2019 (CRE2019), Denver, CO (17 Nov 2019). [PDF](#)

88. "Variable precision computing: Applications and challenges," ICERM Workshop on Variable Precision in Mathematical and Scientific Computing, ICERM, Brown University (6-8 May 2020). [PDF](#)
89. "Reproducible scientific computing: Progress and challenges," Correctness 2020: 4th International Workshop on Software Correctness for HPC Applications (11 Nov 2020). [PDF](#)
90. "Finding large Poisson polynomials using four-level variable precision," Correctness 2021: 5th International Workshop on Software Correctness for HPC Applications (14 Nov 2021). [PDF](#)
91. "Why financial research is prone to false statistical discoveries," U.C. Berkeley Risk Seminar (25 Jan 2022); similar talk for Minnesota Center for Financial and Actuarial Mathematics (18 Mar 2022). [PDF](#)
92. "Experimental mathematics: Serious research and great fun," Euler Circle (6 Jun 2022). [PDF](#)
93. "New computations of Poisson polynomials," West Coast Number Theory, 16 Dec 2022. [PDF](#)
94. "New computations of Poisson polynomials: An application of very high-precision floating-point arithmetic," FPTalks workshop, University of Utah, July 2023. [PDF](#)
95. "Are the digits of Pi random?," United States Military Academy, West Point, MD, 6 Mar 2024. [PDF](#)

Books (most recent listed last):

1. Jonathan M. Borwein and David H. Bailey, *Mathematics by Experiment: Plausible Reasoning in the 21st Century*, A. K. Peters, Wellesley, MA, 2004; second edition, 2008.
2. Jonathan M. Borwein, David H. Bailey, and Roland Girgensohn *Experimentation in Mathematics: Computational Paths to Discovery*, A. K. Peters, Wellesley, MA, 2004.
3. Jonathan Borwein, David Bailey and Roland Girgensohn, *Experiments in Mathematics*, CD-ROM, A. K. Peters, Wellesley, MA, 2006.
4. David H. Bailey, Jonathan M. Borwein, Neil Calkin, Roland Girgensohn, Russell Luke and Victor Moll, *Experimental Mathematics in Action*, A. K. Peters, Wellesley, MA, 2007.
5. David H. Bailey, Robert F. Lucas and Samuel W. Williams, ed., *Performance Tuning of Scientific Applications*, CRC Press, New York, 2011.
6. David H. Bailey and Jonathan M. Borwein, *Exploratory Experimentation in Mathematics: Selected Works*, Perfectly Scientific Press, Portland, OR, 2012.
7. David H. Bailey, Heinz H. Bauschke, Peter Borwein, Frank Garvan, Michel Thera, Jon D. Vanderwerff and Henry, Wolkowicz, ed., *Computational and Analytical Mathematics in Honour of Jonathan Borwein's 60th Birthday*, Springer, 2013.
8. David H. Bailey and Jonathan M. Borwein, ed., *Pi: The Next Generation: A Sourcebook on the Recent History of Pi and Its Computation*, Springer, New York, 2016.
9. David H. Bailey, Naomi Simone Borwein, Richard P. Brent, Regina S. Burachik, Judy-anne Heather Osborn, Brailey Sims, Qiji J. Zhu, ed., *From Analysis to Visualization: A Celebration of the Life and Legacy of Jonathan M. Borwein*, Springer, New York, 2020.

Publications (most recent listed last):

Below is a catalogue of Bailey's publications (except books and presentations), listed in approximate chronological order, with **most recent listed last**. This includes:

- Refereed journal articles.
- Refereed conference papers.
- Various other refereed technical reports.
- Articles published in the [Huffington Post](#).
- Articles published in the [Conversation](#).
- Articles published in the [Math Drudge blog \(2009-2016\)](#).
- Articles published in the [Mathematical Investor blog \(2013-present\)](#).
- Articles published in the [Math Scholar blog \(2017-present\)](#).

For some of the articles listed below as published in the Mathematical Investor blog, as indicated by an asterisk * in the author list, Bailey acknowledges input from a colleague who prefers not to be listed.

1. David H. Bailey, "Vector computer memory bank contention," *IEEE Transactions on Computers*, vol. C-36, no. 3 (Mar. 1987), pg. 293-298, preprint draft available at [PDF](#).
2. David H. Bailey, "A high-performance fast Fourier transform algorithm for the Cray-2," *Journal of Supercomputing*, vol. 1, no. 1 (Jul 1987), pg. 43-60, preprint draft available at [PDF](#).
3. David H. Bailey, "A high-performance FFT algorithm for vector supercomputers," *International Journal of Supercomputer Applications*, vol. 2, no. 1 (1988), pg. 82-87, preprint draft available at [PDF](#).
4. David H. Bailey, "Numerical results on the transcendence of constants involving Pi, E, and Gamma," *Mathematics of Computation*, vol. 50, no. 181 (Jan 1988), pg. 275-281, preprint draft available at [PDF](#).
5. David H. Bailey, "The computation of Pi to 29,360,000 decimal digits using Borweins' quartically convergent algorithm," *Mathematics of Computation*, vol. 50, no. 181 (Jan. 1988), pg. 283-296, preprint draft available at [PDF](#).
6. Don A. Calahan and David H. Bailey, "Measurement and analysis of memory conflicts on vector multiprocessors," in Joanne L. Martin, ed., *Performance Evaluation of Supercomputers*, North-Holland, 1988, pg. 83-106, preprint draft available at [PDF](#).
7. David H. Bailey, "Extra-high speed matrix multiplication on the Cray-2," *SIAM Journal on Scientific and Statistical Computing*, vol. 9, no. 3, (May 1988), pg. 603-607, preprint draft available at [PDF](#).
8. David H. Bailey and Helaman R. P. Ferguson, "A Strassen-Newton algorithm for high-speed parallelizable matrix inversion," *Proceedings of Supercomputing 1988*, Oct 1988, pg. 419-424, preprint draft available at [PDF](#).
9. Jonathan M. Borwein, Peter B. Borwein and David H. Bailey, "Ramanujan, modular equations, and approximations to Pi," *American Mathematical Monthly*, Mar. 1989, pg. 201-219.

- The authors of this paper later received both the Chauvenet Prize and the Merten Hesse Prize from the Mathematical Association of America, preprint draft available at [PDF](#).
10. David H. Bailey, Horst D. Simon, John T. Barton and Martin J. Fouts, "Floating point arithmetic in future supercomputers," *International Journal of Supercomputer Applications*, vol. 3, no. 3 (1989), pg. 86-90, preprint draft available at [PDF](#).
 11. David H. Bailey, "Array transposition in SSD," manuscript, 3 Oct 1989, available at [PDF](#).
 12. David H. Bailey and H. R. P. Ferguson, "Numerical results on relations between numerical constants using a new algorithm," *Mathematics of Computation*, vol. 53, no. 188 (Oct 1989), pg. 649-656, preprint draft available at [PDF](#).
 13. David H. Bailey, "FFTs in external or hierarchical memory," *Journal of Supercomputing*, vol. 4, no. 1 (Mar 1990), pg. 23-35, preprint draft available at [PDF](#).
 14. David H. Bailey, Eric Barszcz, Rod A. Fatoohi, Horst D. Simon and Sisira Weeratunga, "Performance results on the Intel Touchstone Gamma prototype," *Proceedings of the Fifth Distributed Memory Computing Conference*, Apr 1990, pg. 1236-1245, preprint draft available at [PDF](#).
 15. David H. Bailey, "In response to the fate of Fortran-8X," *Communications of the ACM*, vol. 33, no. 4 (Apr 1990), pg. 391-392, preprint draft available at [PDF](#).
 16. David H. Bailey, Eric Barszcz, John T. Barton, David S. Browning, Russell L. Carter, Leo Dagum, Rod A. Fatoohi, Paul O. Frederickson, Thomas A. Lasinski, Robert S. Schreiber, Horst D. Simon, Venkat Venkatakrishnan and Sisira Weeratunga, "The NAS Parallel Benchmarks," *International Journal of Supercomputer Applications*, vol. 5, no. 3 (Fall 1991), pg. 66-73, preprint draft available at [PDF](#).
 17. Helaman R. P. Ferguson and David H. Bailey, "A polynomial time, numerically stable integer relation algorithm," manuscript, 1991, available at [PDF](#).
 18. David H. Bailey, King Lee, and Horst D. Simon, "Using Strassen's algorithm to accelerate the solution of linear systems," *Journal of Supercomputing*, vol. 4., no. 4 (Jan 1991), pg. 357-371, preprint draft available at [PDF](#).
 19. David H. Bailey, "Twelve ways to fool the masses when giving performance results on parallel computers," *Supercomputing Review*, Aug 1991, pg. 54-55, preprint draft available at [PDF](#).
 20. David H. Bailey and P. N. Swartztrauber, "The fractional Fourier transform and applications," *SIAM Review*, vol. 33 no. 3 (Sep 1991), pg. 389-404; please also see the errata note that follows this item; preprint draft available at [PDF](#).
 21. David H. Bailey, "Errata to 'The fractional Fourier transform and applications,'" manuscript, 1991, available at [PDF](#).
 22. David H. Bailey, Eric Barszcz, John T. Barton, David S. Browning, Russell L. Carter, Leo Dagum, Rod A. Fatoohi, Paul O. Frederickson, Thomas A. Lasinski, Robert S. Schreiber, Horst D. Simon, Venkat Venkatakrishnan and Sisira Weeratunga, "The NAS Parallel Benchmarks: Summary and preliminary results," *Proceedings of Supercomputing 1991*, ACM/IEEE Computer Society, Nov 1991, 158-165. The paper won the 2015 Test of Time Award from the Supercomputing Conference (sponsored by the ACM and the IEEE Computer Society), preprint draft available at [PDF](#).

23. David H. Bailey and Paul O. Frederickson, "Performance of two of the NAS Parallel Benchmarks," *Proceedings of Supercomputing 1991*, ACM/IEEE Computer Society, Nov 1991, pg. 166-173, preprint draft available at [PDF](#).
24. David H. Bailey, "Misleading performance reporting in the supercomputing field", *Scientific Programming*, vol. 1., no. 2 (Winter 1992), pg. 141-151, preprint draft available at [PDF](#).
25. David H. Bailey, "How useful are today's parallel computers?", *Computers in Physics*, vol. 6, no. 2 (Mar./Apr. 1992), pg. 216, preprint draft available at [PDF](#).
26. David H. Bailey, Eric Barszcz, Leo Dagum and Horst D. Simon, "NAS Parallel Benchmark results," *Proceedings of Supercomputing 1992*, Nov 1992, pg. 386-393, preprint draft available at [PDF](#).
27. David H. Bailey, R. Krasny and R. Pelz, "Multiple precision, multiple processor vortex sheet roll-up computation," *Proceedings of the Sixth SIAM Conference on Parallel Processing for Scientific Computing*, 1993, SIAM, Philadelphia, pg. 52-56, preprint draft available at [PDF](#).
28. David H. Bailey, "Automatic translation of Fortran programs to multiprecision," NASA RNR Technical Report, RNR-91-025, updated 1993, preprint draft available at [PDF](#).
29. David H. Bailey, "Experience with parallel computers at NASA Ames", *International Journal of High Speed Computing*, vol. 5, no. 1 (1993), pg. 51-62, preprint draft available at [PDF](#).
30. David H. Bailey, "A portable high performance multiprecision package," NASA RNR Technical Report, RNR-90-022, updated 1993, preprint draft available at [PDF](#).
31. David H. Bailey, "RISC microprocessors and scientific computing," *Proceedings of Supercomputing '93*, IEEE Computer Society, 1993, pg. 645-654, preprint draft available at [PDF](#).
32. David H. Bailey, Eric Barszcz, Leo Dagum and Horst D. Simon, "NAS Parallel Benchmark results," *IEEE Parallel and Distributed Technology*, Feb 1993, pg. 43-51, preprint draft available at [PDF](#).
33. David H. Bailey, "Multiprecision translation and execution of Fortran programs," *ACM Transactions on Mathematical Software*, vol. 19, no. 3, Sep 1993, pg. 288-319, preprint draft available at [PDF](#).
34. David H. Bailey, Jonathan M. Borwein and Roland Girgensohn, "Experimental evaluation of Euler sums", *Experimental Mathematics*, vol. 3, no. 1 (1994), pg. 17-30, preprint draft available at [PDF](#).
35. David H. Bailey, M. Berry, J. Dongarra, Vladimir Getov, T. Haupt, Tony Hey, Roger W. Hockney, D. Walker, "PARKBENCH Report-1: Public International Benchmarks for Parallel Computers," Technical Report: UT-CS-93-213, 1994, preprint draft available at [PDF](#).
36. D. Bailey, E. Barszcz, J. Barton, D. Browning, R. Carter, L. Dagum, R. Fatoohi, S. Fineberg, P. Frederickson, T. Lasinski, R. Schreiber, H. Simon, V. Venkatakrishman and S. Weeratunga, "The NAS Parallel Benchmarks," NASA RNR Technical Report, RNR-94-007, updated 1994, preprint draft available at [PDF](#).
37. David H. Bailey and P. N. Swarztrauber, "A fast method for the numerical evaluation of continuous Fourier transforms," *SIAM Journal on Scientific Computing*, vol. 15, no. 5 (Sep 1994), pg. 1105-1110, preprint draft available at [PDF](#).

38. David H. Bailey, "Unfavorable strides in cache memory systems," *Scientific Programming*, vol. 4 (1995), pg. 53-58, preprint draft available at [PDF](#).
39. David H. Bailey and Paul N. Swarztrauber, "Efficient detection of a continuous-wave signal with a linear frequency drift," *SIAM Journal on Scientific Computing*, vol. 16 (1995), pg. 1233-1239, preprint draft available at [PDF](#).
40. David H. Bailey, Tim Harris, William Saphir, Rob van der Wijngaart, Alex Woo and Maurice Yarrow, "The NAS Parallel Benchmarks 2.0," manuscript, Dec 1995, available at [PDF](#).
41. David H. Bailey, "A Fortran-90 based multiprecision system," *ACM Transactions on Mathematical Software*, vol. 21, no. 4 (Dec 1995), pg. 379-387, preprint draft available at [PDF](#).
42. David H. Bailey, "On the computational cost of FFT-based linear convolutions", manuscript, Jun 1996, available at [PDF](#).
43. Subhash Saini and David H. Bailey, "NAS Parallel Benchmark (version 1.0) results 11-96," manuscript, Nov 1996, available at [PDF](#).
44. Al Globus, David H. Bailey, Steve Langhoff, Andrew Pohorille and Creon Levit, "Computational molecular nanotechnology at NASA Ames Research Center, 1996," manuscript, Dec 1996, available at [PDF](#).
45. David H. Bailey, Jonathan M. Borwein and Richard E. Crandall, "On the Khintchine constant," *Mathematics of Computation*, vol. 66 (1997), pg. 417-431, preprint draft available at [PDF](#).
46. David H. Bailey and Simon Plouffe, "Recognizing numerical constants," *Proceedings of the Workshop on Organic Mathematics*, Canadian Mathematical Society, vol. 20 (1997), pg. 73-88, preprint draft available at [PDF](#).
47. David H. Bailey, "Little's Law and high performance computing," manuscript, 1997, available at [PDF](#).
48. Alan H. Karp, Al Geist and David H. Bailey, "1996 Gordon Bell Prize winners," *IEEE Computer*, Jan 1997, pg. 80-85, preprint draft available at [PDF](#).
49. David H. Bailey, Jonathan M. Borwein, Peter B. Borwein and Simon Plouffe, "The quest for Pi," *Mathematical Intelligencer*, vol. 19, no. 1 (Jan 1997), pg. 50-57, preprint draft available at [PDF](#).
50. David H. Bailey, Peter B. Borwein and Simon Plouffe, "On the rapid computation of various polylogarithmic constants," *Mathematics of Computation*, vol. 66, no. 218 (Apr 1997), pg. 903-913, preprint draft available at [PDF](#).
51. David H. Bailey, "Onward to petaflops computing," *ACM Communications*, vol. 40, no. 6 (Jun 1997), pg. 90-92, preprint draft available at [PDF](#).
52. David H. Bailey, Rupak Biswas and Rob Van Der Wijngaart, "NAS applications and advanced architectures," NAS Technical Report NAS-97-031, NASA Ames Research Center (Nov 1997), preprint draft available at [PDF](#).
53. David H. Bailey, "Challenges of future high-end computing," in Jonathan Schaeffer, ed., *High Performance Computer Systems and Applications*, Kluwer Academic Press, Boston, 1998, preprint draft available at [PDF](#).
54. Al Globus, David H. Bailey, Jie Han, Richard Jaffe, Creon Levit, Ralph Merkle and Deepak Srivastava, "NASA applications of molecular nanotechnology," *Journal of the British Interplanetary Society*, vol. 15 (1998), pg. 145-152, available at [HTML](#).

55. David H. Bailey, "Finding new mathematical identities via numerical computations," *ACM SIGNUM*, vol. 33, no. 1 (Jan 1998), pg. 17-22, preprint draft available at [PDF](#).
56. Alan H. Karp, Ewing Lusk and David H. Bailey, "1997 Gordon Bell Prize winners," *IEEE Computer*, Jan 1998, pg. 86-92, preprint draft available at [PDF](#).
57. Ji Wang, P. C. Y. Lee and David H. Bailey, "Thickness-shear and flexural vibrations of linearly contoured crystal strips with multiprecision computation," *Computers and Structures*, vol. 70 (1999), pg. 437-445.
58. David H. Bailey and David J. Broadhurst, "A seventeenth-order polylogarithm ladder," 1999, preprint draft available at [PDF](#).
59. Helaman R. P. Ferguson, David H. Bailey and Stephen Arno, "Analysis of PSLQ, an integer relation finding algorithm," *Mathematics of Computation*, vol. 68, no. 225 (Jan 1999), pg. 351-369, preprint draft available at [PDF](#).
60. Adrian T. Wong, Leonid Oliker, William T. C. Kramer, Teresa L. Kaltz and David H. Bailey, "Evaluating system effectiveness in high performance computing systems," Nov 1999, preprint draft available at [PDF](#).
61. David H. Bailey, "Integer relation detection," *Computing in Science and Engineering*, Jan-Feb, 2000, pg. 24-28, preprint draft available at [PDF](#).
62. Adrian T. Wong, Leonid Oliker, William T. C. Kramer, Teresa L. Kaltz and David H. Bailey, "System utilization benchmark on the Cray T3E and IBM SP," *Fifth Workshop on Job Scheduling*, May 1999; also published in *Job Scheduling Strategies for Parallel Processing*, Dror G. Feitelson and Larry Rudolph, ed. Springer, 2000, pg. 56-67, preprint draft available at [PDF](#).
63. David H. Bailey and David J. Broadhurst, "Parallel integer relation detection: Techniques and applications," *Mathematics of Computation*, vol. 70, no. 236 (Oct 2000), pg. 1719-1736, preprint draft available at [PDF](#).
64. Yozo Hida, Xiaoye S. Li and David H. Bailey, "Quad-double arithmetic: Algorithms, implementation, and application," Oct 2000, preprint draft available at [PDF](#).
65. Adrian T. Wong, Leonid Oliker, William T. C. Kramer, Teresa L. Kaltz and David H. Bailey, "ESP: A system utilization benchmark," *Proceedings of SC2000*, Nov 2000, preprint draft available at [PDF](#).
66. David H. Bailey and Jonathan M. Borwein, "Experimental mathematics: Recent developments and future outlook," in Bjorn Engquist and Wilfried Schmid, ed., *Mathematics Unlimited -- 2001 and Beyond*, Springer, 2001, pg. 51-66, preprint draft available at [PDF](#).
67. Adrian T. Wong, William T. C. Kramer, Leonid Oliker and David H. Bailey, "Comparison of the ESP benchmark with observed system utilization," manuscript, 2001, available at [PDF](#).
68. Yozo Hida, Xiaoye S. Li and David H. Bailey, "Algorithms for quad-double precision floating point arithmetic," *15th IEEE Symposium on Computer Arithmetic*, IEEE Computer Society, 2001, pg. 155-162, preprint draft available at [PDF](#).
69. David H. Bailey, "How fast is my Beowulf?," in Thomas Sterling, ed., *Beowulf Cluster Computing with Linux*, and in *Beowulf Cluster Computing with Windows*, MIT Press, 2001, preprint draft available at [PDF](#).

70. David H. Bailey and Richard E. Crandall, "On the random character of fundamental constant expansions," *Experimental Mathematics*, vol. 10, no. 2 (Jun 2001), pg. 175-190, preprint draft available at [PDF](#).
71. C. William McCurdy, Horst D. Simon, William G. C. Kramer, Robert F. Lucas, William E. Johnston and David H. Bailey, "Future directions in scientific supercomputing," *Computer Physics Communications*, vol. 147 (2002), pg. 34-39, preprint draft available at [PDF](#).
72. David H. Bailey, David Broadhurst, Yozo Hida, Sherry Li and Brandon Thompson, "High performance computing meets experimental mathematics," *Proceedings of SC2002*, preprint draft available at [PDF](#).
73. David H. Bailey and Richard E. Crandall, "Random generators and normal numbers," *Experimental Mathematics*, vol. 11, no. 4 (2002), pg. 527-546, preprint draft available at [PDF](#).
74. David H. Bailey and Daniel J. Rudolph, "An ergodic proof that rational times normal is normal", Feb 2002, preprint draft available at [PDF](#).
75. X. S. Li, J. W. Demmel, D. H. Bailey, G. Henry, Y. Hida, J. Iskandar, W. Kahan, A. Kapur, M. C. Martin, T. Tung, D. J. Yoo, "Design, implementation and testing of extended and mixed precision BLAS," *ACM Transactions on Mathematical Software*, vol. 28, no. 2 (Jun 2002), pg. 152-205, preprint draft available at [PDF](#).
76. David H. Bailey, "A reclusive kind of science," *Computing in Science and Engineering*, Sept-Oct 2002, pg. 79-81, preprint draft available at [PDF](#).
77. David H. Bailey, Yozo Hida, Xiaoye S. Li and Brandon Thompson, "ARPREC: An arbitrary precision computation package," Sept 2002, preprint draft available at [PDF](#).
78. David H. Bailey and Alexei M. Frolov, "Universal variational expansion for high-precision bound-state calculations in three-body systems," *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 35, no. 20 (28 Oct 2002), pg. 4287-4298, preprint draft available at [PDF](#).
79. Alexei M. Frolov and David H. Bailey, "Highly accurate evaluation of the few-body auxiliary functions and four-body integrals," *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 36, no. 9 (14 May 2003), pg. 1857-1867, preprint draft available at [PDF](#).
80. David H. Bailey, "Some background on Kanada's recent pi calculation," manuscript, 16 May 2003, available at [PDF](#).
81. David H. Bailey, Bronis de Supinski, Jack Dongarra, Thomas Dunigan, Guang Gao, Adolfo Hoisie, Paul Hovland, Jeffrey Hollingsworth, David Jefferson, Chandrika Kamath, Allen Malony, Boyanna Norris, Daniel Quinlan, Sally McKee, Celso Mendes, Shirley Moore, Daniel Reed, Allan Snavely, Erich Strohmaier, Jeffrey Vetter, Patrick Worley, "Performance technologies for peta-scale systems: A white paper prepared by the Performance Evaluation Research Center and collaborators," manuscript, 14 May 2003, available at [PDF](#).
82. David H. Bailey and Xiaoye S. Li, "A comparison of three high-precision quadrature schemes," *Proceedings of the Real Numbers and Computing Conference*, Lyon, France, Sep 2003. See revised version below.
83. David H. Bailey, Jonathan M. Borwein, Richard E. Crandall and Carl Pomerance, "On the binary expansions of algebraic numbers," *Journal of Number Theory Bordeaux*, vol. 16 (2004), pg. 487-518, preprint draft available at [PDF](#).

84. David H. Bailey, "Java meets numerical analysis," *Scientific Programming*, vol. 12 (2004), no. 1, pg. 59-60, preprint draft available at [PDF](#).
85. David H. Bailey, "A Pseudo-random number generator based on normal numbers," Dec 2004, preprint draft available at [PDF](#).
86. David H. Bailey, Xiaoye S. Li and Karthik Jeyabalan, "A comparison of three high-precision quadrature schemes," *Experimental Mathematics*, vol. 14 (2005), no. 3, pg 317-329, preprint draft available at [PDF](#).
87. David H. Bailey, "Review of *The Siam 100-Digit Challenge: A Study in High-Accuracy Numerical Computing*," *Bulletin of the American Mathematical Society*, vol. 42 (2005), no. 4, pg 545-548, preprint draft available at [PDF](#).
88. Horst Simon, William Kramer, William Saphir, John Shalf, David Bailey, Leonid Oliker, Michael Banda, C. William McCurdy, John Hules, Andrew Canning, Marc Day, Philip Colella, David Serafini, Michael Wehner and Peter Nugent, "Science-driven system architecture: A new process for leadership class computing," *Journal of the Earth Simulator*, vol. 2, no. 1 (Jan 2005), pg 1-9, preprint draft available at [PDF](#).
89. David H. Bailey, "A hot-spot proof of normality for the alpha constants," Jan 2005, preprint draft available at [PDF](#).
90. Piotr Luszczek, Jack J. Dongarra, David Koester, Rolf Rabenseifner, Bob Lucas, Jeremy Kepner, John McCalpin, David Bailey and Daisuke Takahashi, "Introduction to the HPC Challenge Benchmark Suite," Apr 2005, preprint draft available at [PDF](#).
91. David H. Bailey, "High-precision floating-point arithmetic in scientific computation," *Computing in Science and Engineering*, May-Jun, 2005, pg. 54-61, preprint draft available at [PDF](#).
92. David H. Bailey and Jonathan M. Borwein, "Experimental mathematics: Examples, methods and implications," *Notices of the American Mathematical Society*, vol. 52, no. 5 (May 2005), pg. 502-514, available at [AMS Notices PDF](#) | [Preprint PDF](#).
93. David H. Bailey and Alexei M. Frolov, "Positron annihilation in the bipostronium Ps sub 2", *Physical Review A*, vol. 72 (11 Jul 2005), pg. 014501-1 to 014501-4, preprint draft available at [PDF](#).
94. David H. Bailey and Allan S. Snavely, "Performance modeling: Understanding the present and predicting the future," *Proceedings of Euro-Par 2005*, Lisbon, Portugal, Sep 2005, preprint draft available at [PDF](#).
95. David H. Bailey and Jonathan M. Borwein, "Future prospects for computer-assisted mathematics," *Notes of the Canadian Mathematical Society*, vol. 37, no. 8 (Dec 2005), pg. 2-6, preprint draft available at [PDF](#).
96. David H. Bailey and Michal Misiurewicz, "A strong hot spot theorem," *Proceedings of the American Mathematical Society*, vol. 134 (2006), no. 9, pg. 2495-2501, preprint draft available at [PDF](#).
97. David H. Bailey, Jonathan M. Borwein and Richard E. Crandall, "Integrals of the Ising class," *Journal of Physics A: Mathematical and General*, vol. 39 (2006), pg. 12271-12302, preprint draft available at [PDF](#) | Ising data: [PDF](#); [LaTeX](#).

98. David H. Bailey, Jonathan M. Borwein and David M. Bradley, "Experimental determination of Apery-like identities for $\zeta(2n+2)$," *Experimental Mathematics*, vol. 15 (2006), pg. 281-289, preprint draft available at [PDF](#).
99. David H. Bailey, "Review of *Accuracy and Reliability in Scientific Computing*," by Bo Einarsson, ed., *Scientific Programming*, vol. 14 (2006), pg. 41-42, preprint draft available at [PDF](#).
100. Leonid Oliker, Rupak Biswas, Rob Van der Wijngaart, David H. Bailey and Allan Snively, "Performance evaluation and modeling of ultra-scale systems," *Parallel Processing for Scientific Computing*, SIAM, Philadelphia, PA, 2006, preprint draft available at [PDF](#).
101. David H. Bailey, "Tanh-sinh high-precision quadrature," Jan 2006, preprint draft available at [PDF](#).
102. David H. Bailey and Jonathan M. Borwein, "Effective error bounds in Euler-Maclaurin-based quadrature schemes," Jun 2005, preprint draft available at [PDF](#) Condensed version in *Proceedings of the 2006 High-Performance Computing Conference (HPCS)*: [PDF](#).
103. David H. Bailey, Jonathan M. Borwein, Vishal Kapoor and Eric Weisstein, "Ten problems in experimental mathematics," *American Mathematical Monthly*, vol. 113, no. 6 (Jun 2006), pg. 481-509, preprint draft available at [PDF](#).
104. David H. Bailey, "The BBP algorithm for Pi," manuscript, Sep 2006, available at [PDF](#).
105. David H. Bailey and Jonathan M. Borwein, "Finding general explicit formulas for Ising integral recursions," manuscript, Oct 2006, available at [PDF](#).
106. Hongzhang Shan, Erich Strohmaier, Ji Qiang, David H. Bailey, and Kathy Yelick, "Performance modeling and optimization of a high energy colliding beam simulation code," *Proceedings of SC2006*, Nov 2006, preprint draft available at [PDF](#).
107. David H. Bailey, Jonathan M. Borwein and Richard E. Crandall, "Box integrals," *Journal of Computational and Applied Mathematics*, vol. 206 (2007), pg. 196-208, preprint draft available at [PDF](#). Note: This PDF file corrects an error on page 5. Box integral data: [PDF](#); [LaTeX](#).
108. David H. Bailey, David Borwein, Jonathan M. Borwein and Richard Crandall, "Hypergeometric forms for Ising-class integrals," *Experimental Mathematics*, vol. 16 (2007), no. 3, pg. 257-276, preprint draft available at [PDF](#).
109. David H. Bailey and Jonathan M. Borwein, "Solution to Monthly Problem #11515," manuscript, Feb 2007, available at [PDF](#).
110. David H. Bailey and Jonathan M. Borwein, "Solution to Monthly problem #11275," manuscript, Feb 2007, available at [PDF](#).
111. David H. Bailey, Robert Lucas, Paul Hovland, Boyana Norris, Kathy Yelick, Dan Gunter, Bronis de Supinski, Dan Quinlan, Pat Worley, Jeff Vetter, Phil Roth, John Mellor-Crummey, Allan Snively, Jeff Hollingsworth, Dan Reed, Rob Fowler, Ying Zhang, Mary Hall, Jacque Chame, Jack Dongarra, Shirley Moore, "Performance engineering: Understanding and improving the performance of large-scale codes," *CT Watch Quarterly*, vol. 3, no. 4 (Nov 2007), pg. 18-23, preprint draft available at [PDF](#).
112. David H. Bailey and Jonathan M. Borwein, "Solution to Monthly problem #11277," manuscript, Mar 2007, available at [PDF](#).
113. David H. Bailey, "A non-normality result," manuscript, Aug 2007, available at [PDF](#).

114. David H. Bailey, "On a tan product conjecture," manuscript, Aug 2007, available at [PDF](#).
115. Natalie J. Durgin, Sofia M. Garcia, Tamara Flournoy and David H. Bailey, "'Syncing' Up with the Quinn-Rand-Strogatz constant: Hurwitz-Zeta functions in non-linear physics," Sep 2007, preprint draft available at [PDF](#).
116. David H. Bailey, Jonathan M. Borwein, David Broadhurst and M. L. Glasser, "Elliptic integral evaluations of Bessel moments," *Journal of Physics A: Mathematical and General*, vol. 41 (2008), pg. 205203, preprint draft available at [PDF](#).
117. David H. Bailey, "Review of *An Introduction to Parallel and Vector Scientific Computing*," *Scientific Programming*, vol. 16 (2008), pg. 97-98, preprint draft available at [PDF](#).
118. David H. Bailey and Jonathan M. Borwein, "High-precision computation and mathematical physics," *XII Advanced Computing and Analysis Techniques in Physics Research*, 2008, preprint draft available at [PDF](#).
119. David H. Bailey, "Resolving numerical anomalies in scientific computation," manuscript, Jan 2008, available at [PDF](#) | [Gzipped code file](#).
120. David Bailey, Jacqueline Chame, Chun Chen, Jack Dongarra, Mary Hall, Jeffrey K. Hollingsworth, Paul Hovland, Shirley Moore, Keith Seymour, Jaewook Shin, Ananta Tiwari, Sam Williams, Haihang You, "PERI auto-tuning," *Journal of Physics: Conference Series*, vol. 125 (2008), 012089, preprint draft available at [PDF](#); journal copy: [PDF](#).
121. David H. Bailey and Jonathan M. Borwein, "Highly parallel, high-precision numerical integration," manuscript, Apr 2008, available at [PDF](#).
122. Yozo Hida, Xiaoye S. Li and David H. Bailey, "Library for double-double and quad-double arithmetic," manuscript, 8 May 2008, available at [PDF](#).
123. David H. Bailey and Jonathan M. Borwein, "Computer-assisted discovery and proof," Tewodros Amdeberhan and Victor H. Moll, ed., *Tapas in Experimental Mathematics*, Contemporary Mathematics, American Mathematical Society, May 2008, pg. 21-52, preprint draft available at [PDF](#).
124. Samuel Williams, Kaushik Datta, Jonathan Carter, Leonid Oliker, John Shalf, Kathy Yelick and David H. Bailey, "PERI -- Auto-tuning memory-intensive kernels for multicore," *Journal of Physics: Conference Series*, vol. 125 (2008), Nov. 2008, available at [IOP PDF](#) | [Pre-print PDF](#).
125. Lin-Wang Wang, Byoungnak Lee, Hongzhang Shan, Zhengji Zhao, Juan Meza, Erich Strohmaier, David Bailey, "Linearly scaling 3D fragment method for large-scale electronic structure calculations," *Proceedings of SC08*, Nov 2008. Winner of the 2008 ACM Gordon Bell Prize in a special category for "algorithmic innovation." preprint draft available at [PDF](#).
126. David H. Bailey, Richard E. Crandall and Jonathan M. Borwein, "Resolution of the Quinn-Rand-Strogatz constant of nonlinear physics," *Experimental Mathematics*, vol. 18 (2009), pg. 107-116, preprint draft available at [PDF](#).
127. David H. Bailey, "Can an evolutionary process generate English text?," *Biological Theory*, vol. 4, no. 2 (Spring 2009), pg. 125-131, preprint draft available at [PDF](#).
128. David H. Bailey and Jonathan M. Borwein, "Solutions to Monthly Problems 11456 and 11457," manuscript, 2009, available at [PDF](#).
129. David H. Bailey and Jonathan M. Borwein, "Proposed SIAM problem," manuscript 2009, available at [PDF](#).

130. David H. Bailey, Jonathan M. Borwein and Jorg Waldvogel, "Problem proposed for the American Mathematical Monthly," *American Mathematical Monthly*, May 2009 (problem section), preprint draft available at [PDF](#).
131. David H. Bailey and Jonathan M. Borwein, "Solution to Monthly Problem #11410," manuscript, Feb 2009, available at [PDF](#).
132. J. Meza, S. Campbell, and D. Bailey, "Mathematical and statistical opportunities in cyber security," *Lawrence Berkeley National Laboratory Technical Report*, Mar 2009, preprint draft available at [PDF](#).
133. Bronis R. de Supinski, Sadaf Alam, David H. Bailey, Laura Carrington, Chris Daley, Anshu Dubey, Todd Gamblin, Dan Gunter, Paul Hovland, Heike Jagode, Karen Karavanic, Gabriel Marin, John Mellor-Crummey, Shirley Moore, Boyana Norris, Leonid Oliker, Cathie Olschanowsky, Philip C. Roth, Martin Schulz, Sameer Shende, Allan Snavey, Wyatt Spear, Mustafa Tikir, Jeff Vetter, Pat Worley and Nick Wright, "Modeling the Office of Science Ten Year Facilities Plan: The PERI architecture tiger team," *Journal of Physics: Conference Series*, Jun 2009, preprint draft available at [PDF](#).
134. David H. Bailey and Jonathan M. Borwein, "Solution to Monthly Problem #11418," manuscript, Mar 2009, available at [PDF](#).
135. David H. Bailey and Jonathan M. Borwein, "Experimental mathematics and computational statistics," Edward Wegman, Yasmin H. Said and David W. Scott, editors, *Wiley Interdisciplinary Reviews: Computational Statistics*, Apr 2009, preprint draft available at [PDF](#).
136. David H. Bailey, "Misleading performance claims in scientific computation," *Proceedings of DAC2009*, May 2009, preprint draft available at [PDF](#).
137. Zhengji Zhao, Juan Meza, Byoungnak Lee, Hongzhang Shan, Eric Strohmaier, David Bailey and Lin-Wang Wang, "The linearly scaling 3D fragment method for large scale electronic structure calculations," *Journal of Physics: Conference Series*, Jun 2009, preprint draft available at [PDF](#).
138. David H. Bailey and Jonathan M. Borwein, "Einstein on the 'cosmic religious feeling' as motive for scientific research," *Math Drudge*, 10 Jun 2009, available at [HTML](#).
139. David H. Bailey and Jonathan M. Borwein, "Semiotic fiddling while a digital Rome burns," *Math Drudge*, 23 Jun 2009, available at [HTML](#).
140. David H. Bailey and Jonathan M. Borwein, "Numeracy, relative risk and public policy," *Math Drudge*, 25 Jun 2009, available at [HTML](#).
141. David H. Bailey and Jonathan M. Borwein, "Unscientific America," *Math Drudge*, 1 Aug 2009, available at [HTML](#).
142. David H. Bailey and Jonathan M. Borwein, "Misuse of probability by 'creation scientists'," *Math Drudge*, 13 Aug 2009, available at [HTML](#).
143. David H. Bailey and Jonathan M. Borwein, "How did the economists get it so wrong?," *Math Drudge*, 12 Sep 2009, available at [HTML](#).
144. David H. Bailey and Jonathan M. Borwein, "PSLQ: An algorithm to discover integer relations," *Computeralgebra Rundbrief*, no 45 (Oct 2009), pg. 8-11, preprint draft available at [PDF](#).
145. David H. Bailey and Jonathan M. Borwein, "John D. Barrow's *New Theories of Everything*," *Math Drudge*, 12 Oct 2009, available at [HTML](#).

146. David H. Bailey, "The NAS Parallel Benchmarks," David Padua, ed., *Encyclopedia of Parallel Computing*, Springer, Nov 2009, preprint draft available at [PDF](#).
147. David H. Bailey and Jonathan M. Borwein, "Experimental computation with oscillatory integrals," Tewodros Amdeberhan, Luis A. Medina and Victor H. Moll, ed., *Gems in Experimental Mathematics*, Contemporary Mathematics, American Mathematical Society, vol. 517 (2010), pg. 25-40, preprint draft available at [PDF](#).
148. David H. Bailey, Jonathan M. Borwein, David Broadhurst and Wadim Zudilin, "Experimental mathematics and mathematical physics," Tewodros Amdeberhan, Luis A. Medina and Victor H. Moll, ed., *Gems in Experimental Mathematics*, Contemporary Mathematics, vol. 517 (2010), American Mathematical Society, pg. 41-58, preprint draft available at [PDF](#).
149. David H. Bailey and Jonathan M. Borwein, "Sad state of math and science education," *Math Drudge*, 7 Jan 2010, available at [HTML](#).
150. David H. Bailey and Jonathan M. Borwein, "The confusing morass of copyright laws," *Math Drudge*, 28 Jan 2010, available at [HTML](#).
151. David H. Bailey and Jonathan M. Borwein, "The greatest mathematical discovery?," *Math Drudge*, 6 Feb 2010, available at [HTML](#).
152. David H. Bailey and Jonathan M. Borwein, "Creationism, global warming denial, and scientific integrity," *Math Drudge*, 7 Mar 2010, available at [HTML](#).
153. Alex Kaiser, Samuel Williams, Kamesh Madduri, Khaled Ibrahim, David Bailey, James Demmel and Erich Strohmaier, "A principled kernel testbed for hardware/software co-design research," *Proceedings of the 2nd USENIX Workshop on Hot Topics in Parallelism (HotPar)*, Apr 2010, preprint draft available at [PDF](#).
154. David H. Bailey and Jonathan M. Borwein, "Fermi's Paradox and Stephen Hawking," *Math Drudge*, 30 Apr 2010, available at [HTML](#).
155. David H. Bailey and Jonathan M. Borwein, "How reliable are the radiometric methods used for geologic ages?," *Math Drudge*, 14 May 2010, available at [HTML](#).
156. Erich Strohmaier, Sam Williams, Alex Kaiser, Kamesh Madduri, Khaled Ibrahim, David H. Bailey, James W. Demmel, "A kernel testbed for parallel architecture, language, and performance research," *Proceedings of the International Conference of Numerical Analysis and Applied Mathematics (ICNAAM)*, Jun 2010, preprint draft available at [PDF](#).
157. David H. Bailey, Jonathan M. Borwein and Richard E. Crandall, "Advances in the theory of box integrals," *Mathematics of Computation*, vol. 79, no. 271 (Jul 2010), pg. 1839-1866, preprint draft available at [PDF](#). Note: This PDF file corrects errors on page 4 of the published copy.
158. David H. Bailey and Jonathan M. Borwein, "Latest research indicates we unconsciously pursue goals," *Math Drudge*, 4 Jul 2010, available at [HTML](#).
159. David H. Bailey and Jonathan M. Borwein, "Political threats to science funding," *Math Drudge*, 12 Sep 2010, available at [HTML](#).
160. David H. Bailey and Jonathan M. Borwein, "Can machines teach themselves?," *Math Drudge*, 10 Oct 2010, available at [HTML](#).
161. Alex Kaiser, Samuel Williams, Kamesh Madduri, Khaled Ibrahim, David H. Bailey, James W. Demmel, Erich Strohmaier, "TORCH computational reference kernels: A testbed for computer science research," manuscript, Dec 2010, available at [PDF](#).

162. Samuel W. Williams and David H. Bailey, "Parallel computer architecture," in David H. Bailey, Robert F. Lucas and Samuel W. Williams, ed., *Performance Tuning of Scientific Applications*, CRC Press, Boca Raton, FL, 2011, pg. 11-33.
163. David H. Bailey and Jonathan M. Borwein, "High-precision numerical integration: Progress and challenges," *Journal of Symbolic Computation*, vol. 46 (2011), pg. 741-754, preprint draft available at [PDF](#).
164. David H. Bailey, Allan Snively and Laura Carrington, "Performance modeling: The convolution approach," in David H. Bailey, Robert F. Lucas and Samuel W. Williams, ed., *Performance Tuning of Scientific Applications*, CRC Press, Boca Raton, FL, 2011, pg. 151-164.
165. David H. Bailey, Lin-Wang Wang, Hongzhang Shan, Zhengji Zhao, Juan Meza, Erich Strohmaier and Byounghak Lee, "Tuning an electronic structure code," in David H. Bailey, Robert F. Lucas and Samuel W. Williams, ed., *Performance Tuning of Scientific Applications*, CRC Press, Boca Raton, FL, 2011, pg. 339-354.
166. David H. Bailey, "Introduction," in David H. Bailey, Robert F. Lucas and Samuel W. Williams, ed., *Performance Tuning of Scientific Applications*, CRC Press, Boca Raton, FL, 2011, pg. 1-10.
167. David H. Bailey and Jonathan M. Borwein, "IBM's 'Watson' victorious: Our new computer overlords?," *Math Drudge*, 17 Feb 2011, available at [HTML](#).
168. David H. Bailey and Jonathan M. Borwein, "What does Watson's victory really mean?," *Math Drudge*, 20 Feb 2011, available at [HTML](#).
169. David H. Bailey and Jonathan M. Borwein, "Pi goes on forever," *Math Drudge*, 9 Mar 2011, available at [HTML](#).
170. David H. Bailey and Jonathan M. Borwein, "The greatest mathematical discovery?," manuscript, May 2011, available at [PDF](#).
171. David H. Bailey and Jonathan M. Borwein, "The Greatest Mathematical Discovery?," *Math Drudge*, 9 May 2011, available at [HTML](#).
172. David H. Bailey and Jonathan M. Borwein, "Are science and mathematics socially constructed?," *Math Drudge*, 29 May 2011, available at [HTML](#).
173. David H. Bailey and Jonathan M. Borwein, "Semiotic fiddling while a digital Rome burns," *Math Drudge*, 29 May 2011, available at [HTML](#).
174. David H. Bailey and Jonathan M. Borwein, "Quick tests for checking whether a new math result is plausible," *Math Drudge*, 8 Jun 2011, available at [HTML](#).
175. David H. Bailey and Jonathan M. Borwein, "Ancient Indian square roots," *Math Drudge*, 14 Jun 2011, available at [HTML](#).
176. David H. Bailey and Jonathan M. Borwein, "Merchants of Doubt," *Math Drudge*, 17 Jul 2011, available at [HTML](#).
177. David H. Bailey and Jonathan M. Borwein, "PIIGS, BRICs and STRAW," *Math Drudge*, 23 Jul 2011, available at [HTML](#).
178. David H. Bailey and Jonathan M. Borwein, "What if base-10 arithmetic had been discovered earlier?," *Math Drudge*, 27 Jul 2011, available at [HTML](#).
179. David H. Bailey and Jonathan M. Borwein, "Is mathematics invented or discovered?," *Math Drudge*, 7 Aug 2011, available at [HTML](#).

180. David H. Bailey and Jonathan M. Borwein, "Is math ability inborn or developed?," *Math Drudge*, 14 Aug 2011, available at [HTML](#).
181. Orianna DeMasi, Juan Meza and David H. Bailey, "Dimension reduction using rule ensemble machine learning methods: A numerical study of three ensemble methods," manuscript, 30 Aug 2011, available at [PDF](#).
182. Jonathan Borwein and David H. Bailey, "Magic numbers: The beauty of decimal notation," *The Conversation*, 23 Aug 2011, available at [HTML](#).
183. David H. Bailey and Jonathan M. Borwein, "Where is everybody?," *Math Drudge*, 9 Sep 2011, available at [HTML](#).
184. Jonathan Borwein and David H. Bailey, "Where is everybody? Doing the maths on extraterrestrial life," *The Conversation*, 15 Sep 2011, available at [HTML](#).
185. David H. Bailey and Jonathan M. Borwein, "How far away is everybody?," *Math Drudge*, 29 Sep 2011, available at [HTML](#).
186. Jonathan Borwein and David H. Bailey, "How far away is everybody? Climbing the cosmic distance ladder," *The Conversation*, 24 Oct 2011, available at [HTML](#).
187. David H. Bailey and Jonathan M. Borwein, "Mathematics and scientific fraud," *Math Drudge*, 3 Nov 2011, available at [HTML](#).
188. Jonathan Borwein and David H. Bailey, "When things don't add up: Statistics, maths and scientific fraud," *The Conversation*, 14 Nov 2011, available at [HTML](#).
189. David H. Bailey and Jonathan M. Borwein, "Exploratory experimentation and computation," *Notices of the American Mathematical Society*, vol. 58 (Nov 2011), pg. 1410-1419, available at [AMS Notices PDF](#) | [Preprint PDF](#).
190. David H. Bailey and Jonathan M. Borwein, "Proposed mathematical journal rating system," *Math Drudge*, 20 Nov 2011, available at [HTML](#).
191. David H. Bailey and Jonathan M. Borwein, "That mysterious but important number zero," *Math Drudge*, 21 Nov 2011, available at [HTML](#).
192. David H. Bailey and Jonathan M. Borwein, "Innumeracy and public risk," *Math Drudge*, 4 Dec 2011, available at [HTML](#).
193. Jonathan Borwein and David H. Bailey, "Danger of death: Are we programmed to miscalculate risk?," *The Conversation*, 8 Dec 2011, available at [HTML](#).
194. David H. Bailey and Jonathan M. Borwein, "The remarkable decline of violence," *Math Drudge*, 15 Dec 2011, available at [HTML](#).
195. David H. Bailey and Jonathan M. Borwein, "The great decline of Western society: What are the facts?," *Math Drudge*, 23 Dec 2011, available at [HTML](#).
196. David H. Bailey, Jonathan M. Borwein, Cristian S. Calude, Michael J. Dinneen, Monica Dumitrescu and Alex Yee, "An empirical approach to the normality of pi," *Experimental Mathematics*, vol. 21 (2012), pg. 375-384, preprint draft available at [PDF](#).
197. David H. Bailey and Jonathan M. Borwein, "Hand-to-hand combat with thousand-digit integrals," *Journal of Computational Science*, vol. 3 (2012), pg. 77-86, preprint draft available at [PDF](#).
198. David H. Bailey, Roberto Barrio, and Jonathan M. Borwein, "High precision computation: Mathematical physics and dynamics," *Applied Mathematics and Computation*, vol. 218 (2012), pg. 10106-10121, preprint draft available at [PDF](#).

199. David H. Bailey and Jonathan M. Borwein, "Nonnormality of Stoneham constants," *Ramanujan Journal*, vol. 29 (2012), pg. 409-422; DOI 10.1007/s11139-012-9417-3, preprint draft available at [PDF](#).
200. David H. Bailey and Jonathan M. Borwein, "Moore's Law and the future of science and mathematics," *Math Drudge*, 2 Jan 2012, available at [HTML](#).
201. David H. Bailey and Jonathan M. Borwein, "Poor-quality math and computer science courses threaten technological leadership," *Math Drudge*, 10 Jan 2012, available at [HTML](#).
202. David H. Bailey and Jonathan M. Borwein, "Does probability refute evolution?," *Math Drudge*, 22 Jan 2012, available at [HTML](#).
203. Jonathan Borwein and David H. Bailey, "Make mine a double: Moore's Law and the future of mathematics," *The Conversation*, 31 Jan 2012, available at [HTML](#).
204. David H. Bailey and Jonathan M. Borwein, "Exploration, Experimentation and Computation" (Chinese translation of similarly titled article above), *International Advances in Mathematics* (ISBN 1003-3092), Chinese Academy of Sciences, vol. 31, no. 1 (Jan 2012), pg. 1-14, preprint draft available at [PDF](#).
205. David H. Bailey, Jonathan M. Borwein, Cristian S. Calude, Michael J. Dinneen, Monica Dumitrescu and Alex Yee, "Normality and the digits of Pi," in David H. Bailey and Jonathan M. Borwein, *Exploratory Experimentation in Mathematics: Selected Works*, Perfectly Scientific Press, Portland, OR, 2012, 3 Feb 2012, preprint draft available at [PDF](#).
206. David H. Bailey, Edward A. Baron, Hemant Shukla and Xiaoye S. Li, "High-precision arithmetic and exascale computing," manuscript, 9 Feb 2012, available at [PDF](#).
207. David H. Bailey and Jonathan M. Borwein, "Global warming denial and scientific integrity," *Math Drudge*, 10 Feb 2012, available at [HTML](#).
208. David H. Bailey and Jonathan M. Borwein, "Scientists in politics: What is the score, and what can be done?," *Math Drudge*, 16 Feb 2012, available at [HTML](#).
209. Jonathan Borwein and David H. Bailey, "Doctor, doctor: why so few scientists in top government jobs?," *The Conversation*, 29 Feb 2012, available at [HTML](#).
210. Jonathan Borwein and David H. Bailey, "Hot and bothered: The uncertain mathematics of global warming," *The Conversation*, 17 Feb 2012, available at [HTML](#).
211. David H. Bailey and Marcos M. Lopez de Prado, "Balanced baskets: A new approach to trading and hedging risks," *Journal of Investment Strategies*, vol. 14 (2012), preprint draft available at [SSRN PDF](#) | [Preprint PDF](#).
212. David H. Bailey and Jonathan M. Borwein, "How old is the earth? Calculate it for yourself," *Math Drudge*, 3 Mar 2012, available at [HTML](#).
213. David H. Bailey and Jonathan M. Borwein, "Numeracy crisis threatens first-world economies," *Math Drudge*, 4 Mar 2012, available at [HTML](#).
214. Jonathan Borwein and David H. Bailey, "How old is Earth? A word to skeptics on the dating game," *The Conversation*, 22 Mar 2012, available at [HTML](#).
215. David H. Bailey and Jonathan M. Borwein, "Emmy Noether: pillar of 20th century mathematics and physics," *Math Drudge*, 27 Mar 2012, available at [HTML](#).
216. David H. Bailey and Jonathan M. Borwein, "Are computers playing games with us?," *Math Drudge*, 27 Mar 2012, available at [HTML](#).

217. David H. Bailey and Marcos M. Lopez de Prado, "The Sharpe ratio efficient frontier," *Journal of Risk*, vol. 15 (2012), pg. 3-44, preprint draft available at [SSRN PDF](#) | [Preprint PDF](#).
218. David H. Bailey and Jonathan M. Borwein, "Are computers playing games with us?," *Huffington Post*, 2 Apr 2012, available at [HTML](#).
219. Jonathan Borwein and David H. Bailey, "Yes, there's a numeracy crisis -- so what's the solution?," *The Conversation*, 13 Apr 2012, available at [HTML](#).
220. David H. Bailey and Jonathan M. Borwein, "Book Review: *Why Beliefs Matter: Reflections on the Nature of Science*," *Math Drudge*, 23 Apr 2012, available at [HTML](#).
221. David H. Bailey and Jonathan M. Borwein, "Is your mate actually a computer? Would you pass the 'Turing test'?," *Math Drudge*, 27 Apr 2012, available at [HTML](#).
222. David H. Bailey and Jonathan M. Borwein, "What does the latest DNA data say about evolution?," *Math Drudge*, 1 May 2012, available at [HTML](#).
223. David H. Bailey and Jonathan M. Borwein, "2001: A Space Odyssey: Art versus 2012 reality," *Math Drudge*, 7 May 2012, available at [HTML](#).
224. David H. Bailey and Jonathan M. Borwein, "2001: A Space Odyssey: Art vs. 2012 reality," *Huffington Post*, 9 May 2012, available at [HTML](#).
225. David H. Bailey, Orianna DeMasi and Juan Meza, "Feature selection and multi-class classification using a rule ensemble method," manuscript, 25 May 2012, available at [PDF](#).
226. Jonathan Borwein and David H. Bailey, "Person or computer: Could you pass the Turing test?," *The Conversation*, 3 May 2012, available at [HTML](#).
227. David H. Bailey and Jonathan M. Borwein, "Is modern science 'forever tentative' and 'socially constructed'? No Way!," *Math Drudge*, 31 May 2012, available at [HTML](#).
228. David H. Bailey and Jonathan M. Borwein, "Feast or famine? Promoting green energy in an era of abundant gas and oil," *Math Drudge*, 11 Jun 2012, available at [HTML](#).
229. David H. Bailey and Jonathan M. Borwein, "Bad numbers are bad news," *Math Drudge*, 24 Jun 2012, available at [HTML](#).
230. Jonathan Borwein and David H. Bailey, "Bad numbers make for killer headlines -- and dodgy news," *The Conversation*, 26 Jun 2012, available at [HTML](#).
231. Jonathan Borwein and David H. Bailey, "How to sell green energy in an era of abundant gas and oil," *The Conversation*, 15 Jun 2012, available at [HTML](#).
232. David H. Bailey and Jonathan M. Borwein, "Solution to Monthly problem 11650," manuscript, 14 Jun 2012, available at [PDF](#).
233. David H. Bailey and Jonathan M. Borwein, "Is science 'forever tentative' and 'socially constructed'? No way!," *Huffington Post*, 7 Jun 2012, available at [HTML](#).
234. David H. Bailey and Jonathan M. Borwein, "The uneven preparation of K-12 math teachers," *Math Drudge*, 19 Jul 2012, available at [HTML](#).
235. Jonathan Borwein and David H. Bailey, "School maths is failing children -- a US and Australian perspective," *The Conversation*, 25 Jul 2012, available at [HTML](#).
236. David H. Bailey and Jonathan M. Borwein, "Algebra is essential in a 21st century economy," *Math Drudge*, 31 Jul 2012, available at [HTML](#).
237. David H. Bailey and Jonathan M. Borwein, "Algebra is essential in a 21st century economy," *Huffington Post*, 1 Aug 2012, available at [HTML](#).

238. David H. Bailey and Jonathan M. Borwein, "Talking points for 'Algebra is essential in a 21st century economy'," *Math Drudge*, 9 Aug 2012, available at [HTML](#).
239. David H. Bailey and Jonathan M. Borwein, "Numerical nonsense in the U.S. presidential campaign," *Math Drudge*, 17 Aug 2012, available at [HTML](#).
240. David H. Bailey and Jonathan M. Borwein, "Numerical nonsense in the U.S. presidential campaign," *Huffington Post*, 20 Aug 2012, available at [HTML](#).
241. David H. Bailey and Jonathan M. Borwein, "Smart meters for dummies," *Math Drudge*, 6 Sep 2012, available at [HTML](#).
242. Jonathan Borwein and David H. Bailey, "Smart meters are about as dangerous as....," *The Conversation*, 10 Sep 2012, available at [HTML](#).
243. David H. Bailey and Jonathan M. Borwein, "The heart of the matter: do scientific journalists need ground rules?," *Math Drudge*, 19 Oct 2012, available at [HTML](#).
244. Jonathan Borwein and David H. Bailey, "How to stop the media reporting science fiction as fact," *The Conversation*, 22 Oct 2012, available at [HTML](#).
245. David H. Bailey and Jonathan M. Borwein, "Does math anxiety trigger pain networks in the brain?," *Math Drudge*, 31 Oct 2012, available at [HTML](#).
246. David H. Bailey and Jonathan M. Borwein, "Ancient Indian square roots: An exercise in forensic paleo-mathematics," *American Mathematical Monthly*, vol. 119, no. 8 (Oct 2012), pg. 646-657, preprint draft available at [PDF](#).
247. Jonathan Borwein and David H. Bailey, "Newly calculated: Maths anxiety triggers pain in the brain," *The Conversation*, 1 Nov 2012, available at [HTML](#).
248. David H. Bailey and Jonathan M. Borwein, "What on earth do they think? U.S. politicians on the age of the planet," *Math Drudge*, 19 Nov 2012, available at [HTML](#).
249. David H. Bailey and Jonathan M. Borwein, "What on earth do they think? U.S. politicians on the age of the planet." *Huffington Post*, 20 Nov 2012, available at [HTML](#).
250. David H. Bailey and Jonathan M. Borwein, "Life on Mars!? Maybe we are all Martians," *Math Drudge*, 3 Dec 2012, available at [HTML](#).
251. Jonathan Borwein and David H. Bailey, "Just out of Curiosity, did life on Earth come from Mars?" *The Conversation*, 3 Dec 2012, available at [HTML](#).
252. David H. Bailey and Jonathan M. Borwein, "Is believing in climate change 'an insult to God?'," *Math Drudge*, 6 Dec 2012, available at [HTML](#).
253. David H. Bailey and Jonathan M. Borwein, "Is believing in climate change an insult to God?," *Huffington Post*, 7 Dec 2012, available at [HTML](#).
254. David H. Bailey and Jonathan M. Borwein, "Alarm bells sound over latest international test scores," *Math Drudge*, 12 Dec 2012, available at [HTML](#).
255. David H. Bailey and Jonathan M. Borwein, "Mathematician/physicist/inventor Richard Crandall dies at 64," *Math Drudge*, 21 Dec 2012, available at [HTML](#).
256. Francisco J. Aragon Artacho, David H. Bailey, Jonathan M. Borwein and Peter B. Borwein, "Walking on real numbers," *Mathematical Intelligencer*, vol. 35 (2013), pg. 42-60, preprint draft available at [PDF](#).
257. David H. Bailey, Jonathan M. Borwein, Richard E. Crandall and John Zucker, "Lattice sums arising from the Poisson equation," *Journal of Physics A: Mathematical and Theoretical*, vol. 46 (2013), pg. 115201, preprint draft available at [PDF](#).

258. David H. Bailey and Jonathan M. Borwein, "Compressed lattice sums arising from the Poisson equation: Dedicated to Professor Hari Sirvastava," *Boundary Value Problems*, vol. 75 (2013), DOI: 10.1186/1687-2770-2013-75, available at [Boundary Value Problems PDF](#) | [Preprint PDF](#).
259. David H. Bailey and Jonathan M. Borwein, "Normal numbers and pseudorandom generators," in David H. Bailey, Heinz H. Bauschke, Peter Borwein, Frank Garvan, Michel Thera, Jon D. Vanderwerff and Henry, Wolkowicz, ed., *Computational and Analytical Mathematics in Honour of Jonathan Borwein's 60th Birthday*, Springer, 2013, preprint draft available at [PDF](#).
260. David H. Bailey, Jonathan M. Borwein, Andrew Mattingly and Glenn Wightwick, "The computation of previously inaccessible digits of π^2 and Catalan's constant," *Notices of the American Mathematical Society*, vol. 60 (2013), no. 7, pg. 844-854. The authors of this paper were awarded the 2017 Levi L. Conant Prize by the American Mathematical Society. Available at [AMS Notices PDF](#) | [Preprint PDF](#).
261. David H. Bailey, "A New Kind of Science: Ten years later," in Hector Zenil, ed., *Irreducibility and Computational Equivalence*, Springer, 2013, preprint draft available at [PDF](#).
262. David H. Bailey and Jonathan M. Borwein, "Set the default to 'open': Reproducible science in the computer age," *Math Drudge*, 20 Jan 2013, available at [HTML](#).
263. Abhinav Sarje, Samuel Williams and David H. Bailey, "MPQC: Performance analysis and optimization," manuscript, 24 Jan 2013, available at [PDF](#).
264. Taghrid Samak, Christine Morin and David H. Bailey, "Energy consumption models and predictions for large-scale systems," *Proceedings of the Ninth Workshop on High-Performance, Power-Aware Computing*, 22 Jan 2013, preprint draft available at [PDF](#).
265. David H. Bailey and Jonathan M. Borwein, "Scientific nonsense and relative risk," *Math Drudge*, 13 Feb 2013, available at [HTML](#).
266. Jonathan Borwein and David H. Bailey, "Danger, you're at serious risk of ... no, sorry, it's all relative," *The Conversation*, 15 Feb 2013, available at [HTML](#).
267. Victoria Stodden, David H. Bailey, Jonathan M. Borwein, Randall J. LeVeque, William Rider and William Stein, "Setting the default to reproducible: Reproducibility in computational and experimental mathematics," manuscript, 2 Feb 2013, available at [PDF](#).
268. David H. Bailey and Jonathan M. Borwein, "Smart meters, dumb science," *Math Drudge*, 26 Feb 2013, available at [HTML](#).
269. David H. Bailey and Jonathan M. Borwein, "Smart meters, dumb science," *Huffington Post*, 28 Feb 2013, available at [HTML](#).
270. David H. Bailey and Jonathan M. Borwein, "Set the default to 'Open': Reproducible science in the computer age," *Huffington Post*, 7 Feb 2013, available at [HTML](#).
271. David H. Bailey, Marcos M. Lopez de Prado and Eva del Pozo, "The strategy approval decision: A Sharpe ratio indifference curve approach," *Algorithmic Finance*, vol. 2 (2013), pg. 99-109, preprint draft available at [SSRN PDF](#) | [Preprint PDF](#).
272. David H. Bailey and Jonathan M. Borwein, "The Higgs boson: What does it mean?," *Math Drudge*, 18 Mar 2013, available at [HTML](#).
273. Jonathan Borwein and David H. Bailey, "A Higgs, the Higgs ... is maths at the root of reality?," *The Conversation*, 21 Mar 2013, available at [HTML](#).

274. David H. Bailey and Jonathan M. Borwein, "March 26, 2013: The 100th birthday of Paul Erdos," *Math Drudge*, 25 Mar 2013, available at [HTML](#).
275. David H. Bailey and Marcos Lopez de Prado, "An open-source implementation of the critical line algorithm for portfolio optimization," *Algorithms*, vol. 6 (2013), pg. 169-196, DOI: 10.3390/a6010169, preprint draft available at [SSRN PDF](#) | [Preprint PDF](#) | [CLA-files.zip](#).
276. Cindy Rubio-Gonzalez, Cuong Nguyen, Hong Diep Nguyen, James Demmel, William Kahan, Koushik Sen, David H. Bailey, Costin Iancu and David Hough, "Precimonious: Tuning assistant for floating-point precision," *Proceedings of SC13*, 26 Apr 2013, preprint draft available at [PDF](#).
277. David H. Bailey and Jonathan M. Borwein, "The last Japanese WWII holdout: A lesson for creationists," *Math Drudge*, 1 Apr 2013, available at [HTML](#).
278. David H. Bailey and Jonathan M. Borwein, "Criminology, sports drug testing and evolution," *Math Drudge*, 1 Apr 2013, available at [HTML](#).
279. David H. Bailey and Jonathan M. Borwein, "Are the digits of pi random?," *Math Drudge*, 15 Apr 2013, available at [HTML](#).
280. David H. Bailey and Jonathan M. Borwein, "Are the digits of pi random?," *Huffington Post*, 16 Apr 2013, available at [HTML](#).
281. David H. Bailey and Jonathan M. Borwein, "Why E.O. Wilson is wrong," *Math Drudge*, 17 Apr 2013, available at [HTML](#).
282. David H. Bailey and Jonathan M. Borwein, "Reliability, reproducibility and the Reinhart-Rogoff error," *Math Drudge*, 18 Apr 2013, available at [HTML](#).
283. David H. Bailey and Jonathan M. Borwein, "Why E.O. Wilson is wrong," *Huffington Post*, 18 Apr 2013, available at [HTML](#).
284. George Micheliogiannakis, Xiaoye S. Li, David H. Bailey and John Shalf, "Extending summation precision for network reduction operations," *Proceedings of the International Symposium on Computer Architecture and High Performance Computing*, 26 Apr 2013, preprint draft available at [PDF](#).
285. Jonathan Borwein and David H. Bailey, "The Reinhart-Rogoff error -- or how not to Excel at economics," *The Conversation*, 23 Apr 2013, available at [HTML](#).
286. David H. Bailey and Jonathan M. Borwein, "Fraud, foolishness and error in scientific research," *Math Drudge*, 4 May 2013, available at [HTML](#).
287. David H. Bailey and Jonathan M. Borwein, "The colorful life of the four-color theorem: A tribute to Kenneth Appel," *Math Drudge*, 7 May 2013, available at [HTML](#).
288. Jonathan Borwein and David H. Bailey, "Scientific fraud, sloppy science -- yes, they happen," *The Conversation*, 7 May 2013, available at [HTML](#).
289. Anubhav Jain, Ivano E. Castelli, Geoffroy Hautier, David H. Bailey and Karsten W. Jacobsen, "Performance of genetic algorithms in search for water splitting perovskites," *Journal of Materials Science*, DOI 10.1007/s10853-013-7448-9, May 2013, preprint draft available at [PDF](#).
290. David H. Bailey and Jonathan M. Borwein, "The mad politics of science funding," *Math Drudge*, 8 May 2013, available at [HTML](#).
291. David H. Bailey and Jonathan M. Borwein, "The Abel Prize on Jeopardy!," *Math Drudge*, 10 May 2013, available at [HTML](#).

292. David H. Bailey and Jonathan M. Borwein, "Frank W.J. Olver (1924-2013)," *Math Drudge*, 12 May 2013, available at [HTML](#).
293. Jonathan Borwein and David H. Bailey, "Stupid science funding decisions? Australia's not the only dunce," *The Conversation*, 13 May 2013, available at [HTML](#).
294. David H. Bailey and Jonathan M. Borwein, "Two breakthrough results in number theory," *Math Drudge*, 24 May 2013, available at [HTML](#).
295. David H. Bailey and Jonathan M. Borwein, "Hype now, hide later: No way to do scientific research," *Math Drudge*, 26 May 2013, available at [HTML](#).
296. David H. Bailey and Jonathan M. Borwein, "Hype now, hide later: No way to do scientific research," *Huffington Post*, 28 May 2013, available at [HTML](#).
297. David H. Bailey and Jonathan M. Borwein, "The colorful life of the four-color theorem: A tribute to Kenneth Appel," *Huffington Post*, 8 May 2013, available at [HTML](#).
298. Victoria Stodden, Jonathan Borwein and David H. Bailey, "'Setting the default to reproducible' in computational science research," *SIAM News*, vol. 46, no. 5 (Jun 2013), pg. 4-6.
299. Orianna DeMasi, Taghrid Samak and David H. Bailey, "Identifying HPC codes via performance logs and machine learning," *Proceedings of the First Workshop on Changing Landscapes in HPC Security*, ACM, New York, 17-21 Jun 2013, pg. 23-30, preprint draft available at [PDF](#).
300. David H. Bailey, Jonathan M. Borwein and Victoria Stodden, "Set the default to 'open'," *Notices of the American Mathematical Society*, Jun/Jul 2013, pg. 679, preprint draft available at [AMS Notices PDF](#) | [Preprint PDF](#).
301. David H. Bailey and Jonathan M. Borwein, "Plagiarism is a symptom not a disease," *Math Drudge*, 31 May 2013, available at [HTML](#).
302. Jonathan Borwein and David H. Bailey, "You wait ages for number theory results, then two come at once," *The Conversation*, 3 Jun 2013, available at [HTML](#).
303. David H. Bailey and Jonathan M. Borwein, "Getting it wrong: Australian science literacy hits new low," *Math Drudge*, 17 Jul 2013, available at [HTML](#).
304. David H. Bailey and Jonathan M. Borwein, "Brown, Sokal and Friedman on nonsense in psychology," *Math Drudge*, 18 Jul 2013, available at [HTML](#).
305. Jonathan Borwein and David H. Bailey, "Glum and glummer: Australia vs US on science literacy results," *The Conversation*, 19 Jul 2013, available at [HTML](#).
306. David H. Bailey and Jonathan M. Borwein, "High-precision arithmetic: Progress and challenges," manuscript, 8 Aug 2013, available at [PDF](#). An updated version of this manuscript is "High-precision arithmetic in mathematical physics" (see below), available at [PDF](#).
307. David H. Bailey, Jonathan M. Borwein, Richard E. Crandall and Michael G. Rose, "Expectations on fractal sets," *Applied Mathematics and Computation*, vol. 220 (1 Sep 2013), pg. 695-721. <https://dx.doi.org/10.1016/j.amc.2013.06.078>, preprint draft available at [PDF](#).
308. David H. Bailey and Jonathan M. Borwein, "Did dinosaurs live with humans? Were dragons real?," *Math Drudge*, 27 Aug 2013, available at [HTML](#).
309. David H. Bailey and Jonathan M. Borwein, "Troubles beset Kentucky's Creation Museum," *Math Drudge*, 27 Aug 2013, available at [HTML](#).
310. David H. Bailey and Jonathan M. Borwein, "Massachusetts leads the way in science and math education," *Math Drudge*, 3 Sep 2013, available at [HTML](#).

311. David H. Bailey and Jonathan M. Borwein, "Please mess with Texas: Texas textbook fiasco threatens US science," *Math Drudge*, 15 Sep 2013, available at [HTML](#).
312. David H. Bailey and Jonathan M. Borwein, "Please mess with Texas: Textbook fiasco threatens U.S. science," *Huffington Post*, 18 Sep 2013, available at [HTML](#).
313. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "The two towers of finance," *Mathematical Investor*, 21 Oct 2013, available at [HTML](#).
314. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Two tales of the Kelly formula," *Mathematical Investor*, 27 Oct 2013, available at [HTML](#).
315. David H. Bailey and Jonathan M. Borwein, "When skepticism becomes denial: The unholy alliance between science denial movements," *Math Drudge*, 3 Nov 2013, available at [HTML](#).
316. David H. Bailey and Jonathan M. Borwein, "When skepticism becomes denial: The unholy alliance between science denial movements," *Huffington Post*, 5 Nov 2013, available at [HTML](#).
317. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "The art of investing," *Mathematical Investor*, 15 Nov 2013, available at [HTML](#).
318. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "The myth of the Halloween indicator," *Mathematical Investor*, 15 Nov 2013, available at [HTML](#).
319. David H. Bailey and Jonathan M. Borwein, "Pi in the Simpsons," *Math Drudge*, 18 Nov 2013, available at [HTML](#).
320. David H. Bailey, "The Mathematical Investor: A personal perspective by DHB," *Mathematical Investor*, 28 Nov 2013, available at [HTML](#).
321. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Do large cap stocks boost portfolio performance at year's end?," *Mathematical Investor*, 28 Nov 2013, available at [HTML](#).
322. David H. Bailey and Jonathan M. Borwein, "PISA international test scores show Australia, Canada, UK, USA lagging," *Math Drudge*, 6 Dec 2013, available at [HTML](#).
323. David H. Bailey and Jonathan M. Borwein, "Tipsy tottering, sunlight and the smell of coffee: it's all random," *Math Drudge*, 18 Dec 2013, available at [HTML](#).
324. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "What Wittgenstein can teach all of us about investing," *Mathematical Investor*, 28 Dec 2013, available at [HTML](#).
325. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Are individual investors equipped to make basic financial decisions?," *Mathematical Investor*, 30 Dec 2013, available at [HTML](#).
326. Jonathan M. Borwein and David H. Bailey, "The recent trademarking of Pi: a troubling precedent," *Notices of the American Mathematical Society*, vol. 61 (2014), pg. 1224-1227, available at [AMS Notices PDF](#) | [Preprint PDF](#).
327. George Micheliogiannakis, Xiaoye S. Li, David H. Bailey and John Shalf, "Extending summation precision for network reduction operations," *Springer International Journal of Parallel Programming*, vol. 43 (2014), pg. 1218-1243, available at [HTML](#).

328. David H. Bailey, Jonathan M. Borwein and Alexander D. Kaiser, "Automated simplification of large symbolic expressions," *Journal of Symbolic Computation*, vol. 60 (Jan 2014), pg. 120-136, available at [Science Direct PDF](#) | [Preprint PDF](#) | [Code](#).
329. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Testing early warning indicators," *Mathematical Investor*, 5 Jan 2014, available at [HTML](#).
330. David H. Bailey and Jonathan M. Borwein, "Are our brains hard-wired for numbers?," *Math Drudge*, 14 Jan 2014, available at [HTML](#).
331. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Seminar at the International Association for Quantitative Finance," *Mathematical Investor*, 14 Jan 2014, available at [HTML](#).
332. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Fedspeak, Karl Popper and market directions," *Mathematical Investor*, 19 Jan 2014, available at [HTML](#).
333. David H. Bailey and Jonathan M. Borwein, "Max Tegmark's *Our Mathematical Universe*," *Math Drudge*, 31 Jan 2014, available at [HTML](#).
334. David H. Bailey and Jonathan M. Borwein, "Why mathematics is beautiful and why that matters," *Math Drudge*, 14 Feb 2014, available at [HTML](#).
335. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "The 'scary chart' fallacy," *Mathematical Investor*, 16 Feb 2014, available at [HTML](#).
336. David H. Bailey and Jonathan M. Borwein, "Why mathematics is beautiful and why it matters," *Huffington Post*, 18 Feb 2014, available at [HTML](#).
337. David H. Bailey and Jonathan M. Borwein, "Pi day 3.14 (14)," *Math Drudge*, 23 Feb 2014, available at [HTML](#).
338. David H. Bailey and Jonathan M. Borwein, "Pi day is upon us again, and we still do not know if pi is normal," *American Mathematical Monthly*, Mar 2014, pg. 191-206, available at [MAA PDF](#) | [Preprint PDF](#).
339. David H. Bailey and Jonathan M. Borwein, "Pi day is upon us again, and we still do not know if pi is normal," (Chinese translation of similarly titled article above), *Mathematical Advances of Translation*, vol. 33 (2014), pg. 222-235, preprint draft available at [PDF](#).
340. David H. Bailey, Stephanie Ger, Marcos Lopez de Prado, Alexander Sim and Kesheng Wu, "Statistical overfitting and backtest performance," manuscript, 07 Oct 2014, available at [SSRN PDF](#) | [Preprint PDF](#).
341. Jonathan Borwein and David H. Bailey, "We still can't get enough pi ... but why?," *The Conversation*, 14 Mar 2014, available at [HTML](#).
342. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Qiji Jim Zhu, "Pseudo-mathematics and financial charlatanism: The effects of backtest overfitting on out-of-sample performance," *Notices of the American Mathematical Society*, May 2014, pg. 458-471, available at [AMS Notices PDF](#) | [SSRN PDF](#) | [Preprint PDF](#).
343. David H. Bailey and Marcos Lopez de Prado, "The deflated Sharpe ratio: Correcting for selection bias, backtest overfitting and non-normality," *Journal of Portfolio Management*, vol. 40 (2014), pg. 94-107, preprint draft available at [SSRN PDF](#) | [Preprint PDF](#).
344. David H. Bailey and Jonathan M. Borwein, "Is philosophy needed in mathematics and science?," *Math Drudge*, 13 Mar 2014, available at [HTML](#).

345. David H. Bailey and Jonathan M. Borwein, "Pi Day 3.14 (14)," *Huffington Post*, 14 Mar 2014, available at [HTML](#).
346. David H. Bailey and Jonathan M. Borwein, "Gravitational waves confirm mathematical prediction of inflationary big bang," *Math Drudge*, 18 Mar 2014, available at [HTML](#).
347. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "A sobering analysis of financial gurus' market forecasts," *Mathematical Investor*, 30 Mar 2014, available at [HTML](#).
348. Jonathan Borwein and David H. Bailey, "When science and philosophy collide in a 'fine-tuned' universe," *The Conversation*, 2 Apr 2014, available at [HTML](#).
349. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Pseudo-mathematics and financial charlatanism," *Mathematical Investor*, 4 Apr 2014, available at [HTML](#).
350. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "FAQs on backtest overfitting," *Mathematical Investor*, 13 Apr 2014, available at [HTML](#).
351. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Is the stock market weaker during mid-term election years?," *Mathematical Investor*, 16 Apr 2014, available at [HTML](#).
352. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Review of *Dark Pools* and *Flash Boys*," *Mathematical Investor*, 18 Apr 2014, available at [HTML](#).
353. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Do new backtested index ETFs outperform the market?," *Mathematical Investor*, 23 Apr 2014, available at [HTML](#).
354. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Latest DALBAR report underscores poor long-term performance of individual investors," *Mathematical Investor*, 9 May 2014, available at [HTML](#).
355. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "SEC to propose new rules for high-frequency trading," *Mathematical Investor*, 7 Jun 2014, available at [HTML](#).
356. David H. Bailey and Jonathan M. Borwein, "Can Pi be trademarked?," *Math Drudge*, 11 Jun 2014, available at [HTML](#).
357. David H. Bailey and Jonathan M. Borwein, "Can Pi be trademarked?," *Huffington Post*, 20 Jun 2014, available at [HTML](#).
358. David H. Bailey, Jonathan M. Borwein and Richard E. Crandall, "Computation and theory of extended Mordell-Tornheim-Witten sums," *Mathematics of Computation*, vol. 83, no. 288 (Jul 2014), pg. 1795-1821, preprint draft available at [PDF](#).
359. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "How financially literate are individual investors?," *Mathematical Investor*, 19 Jul 2014, available at [HTML](#).
360. David H. Bailey and Jonathan M. Borwein, "How financially literate is the investing public?," *Huffington Post*, 29 Jul 2014, available at [HTML](#).
361. David H. Bailey, Jonathan M. Borwein, Olga Caprotti, Ursula Martin, Bruno Salvy, Michela Taufer, "Opportunities and challenges in 21st century mathematical computation: ICERM

- workshop report," manuscript, 31 Jul 2014, available at [PDF](#) | [Comments by Nelson H. F. Beebe \(PDF\)](#).
362. David H. Bailey and Jonathan M. Borwein, "Formal proof completed for Kepler's conjecture on sphere packing," *Math Drudge*, 16 Aug 2014, available at [HTML](#).
 363. David H. Bailey and Jonathan M. Borwein, "Opportunities and challenges in experimental mathematics," *Math Drudge*, 26 Aug 2014, available at [HTML](#).
 364. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "New online tool to demonstrate backtest overfitting," *Mathematical Investor*, 28 Aug 2014, available at [HTML](#).
 365. David H. Bailey and Jonathan M. Borwein, "To frack or not to frack: That's not the question," *Math Drudge*, 7 Sep 2014, available at [HTML](#).
 366. David H. Bailey and Jonathan M. Borwein, "To frack or not to frack: That is the question," *Huffington Post*, 9 Sep 2014, available at [HTML](#).
 367. David H. Bailey and Jonathan M. Borwein, "Tilting at windmills," *Math Drudge*, 17 Sep 2014, available at [HTML](#).
 368. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Is 'cherry picking' a factor in hedge fund performance?," *Mathematical Investor*, 25 Sep 2014, available at [HTML](#).
 369. David H. Bailey and Jonathan M. Borwein, "Fusion energy: Hope or hype?," *Math Drudge*, 18 Oct 2014, available at [HTML](#).
 370. David H. Bailey and Jonathan M. Borwein, "Fusion energy: Hope or hype?," *Huffington Post*, 23 Oct 2014, available at [HTML](#).
 371. David H. Bailey and Jonathan M. Borwein, "Opportunities and challenges in experimental mathematics," *SIAM News*, vol. 47, no. 9 (2014), pg. 4, 8, preprint draft available at [Preprint PDF](#).
 372. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Index investing: 'Confidence in the mathematics'," *Mathematical Investor*, 4 Nov 2014, available at [HTML](#).
 373. David H. Bailey and Jonathan M. Borwein, "Dubious digits: Is this data really that accurate?," *Math Drudge*, 8 Nov 2014, available at [HTML](#).
 374. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Dubious digits: Is this data really that accurate?," *Mathematical Investor*, 9 Nov 2014, available at [HTML](#).
 375. David H. Bailey and Jonathan M. Borwein, "Dubious digits: Is this data really that accurate?," *Huffington Post*, 10 Nov 2014, available at [HTML](#).
 376. David H. Bailey and Jonathan M. Borwein, "Big Bucks for Big Breakthroughs: Prize recipients give three million dollar maths talks," *Math Drudge*, 11 Nov 2014, available at [HTML](#).
 377. David H. Bailey and Jonathan M. Borwein, "Low energy nuclear reactions: Papers and patents," *Math Drudge*, 19 Nov 2014, available at [HTML](#).
 378. Jonathan Borwein and David H. Bailey, "The significance of digits: just how reliable are reported numbers?," *The Conversation*, 26 Nov 2014, available at [HTML](#).

379. David H. Bailey and Jonathan M. Borwein, "Low energy nuclear reactions: Papers and patents," *Huffington Post*, 28 Nov 2014, available at [HTML](#).
380. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "How have 2014 market prophets fared?," *Mathematical Investor*, 2 Dec 2014, available at [HTML](#).
381. David H. Bailey and Jonathan M. Borwein, "How have 2014 market prophets fared?," *Huffington Post*, 9 Dec 2014, available at [HTML](#).
382. David H. Bailey and Jonathan M. Borwein, "New results on the prime gap conjecture," *Math Drudge*, 11 Dec 2014, available at [HTML](#).
383. David H. Bailey and Jonathan M. Borwein, "Experimental computation as an ontological game changer: The impact of modern mathematical computation tools on the ontology of mathematics," in Ernest Davis and Philip J. Davis, ed., *Mathematics, Substance and Surmise: Views on the Meaning and Ontology of Mathematics*, Springer, New York, 2015, pg. 25-67, preprint draft available at [PDF](#).
384. David H. Bailey, David Borwein and Jonathan M. Borwein, "On Eulerian log-gamma integrals and Tornheim-Witten zeta functions," *Ramanujan Journal*, vol. 36 (2015), 43-68, DOI 10.1007/s11139-012-9427-1, preprint draft available at [PDF](#).
385. David H. Bailey and Jonathan M. Borwein, "High-precision arithmetic in mathematical physics," *Mathematics*, vol. 3 (2015), pg. 337-367, available at [Journal PDF](#) | [Preprint PDF](#).
386. David H. Bailey and Jonathan M. Borwein, "Experimental applied mathematics," in N. J. Higham, M. R. Dennis, P. Glendinning, P. A. Martin, F. Santosa and J. Tanner, ed., *Princeton Companion for Applied Mathematics*, Princeton University Press, Princeton, NJ, 2015, pg. 925-933, preprint draft available at [PDF](#).
387. David H. Bailey and Marcos Lopez de Prado, "Stop-outs under serial correlation and the 'triple penance' rule," *Journal of Risk*, vol. 18 (2015), no. 2, pg. 61-93, preprint draft available at [SSRN PDF](#) | [Preprint PDF](#).
388. David H. Bailey, Jonathan M. Borwein, Amir Salehipour, Marcos Lopez de Prado and Qiji Zhu, "Online tools for demonstration of backtest overfitting," manuscript, 29 Nov 2015, available at [Preprint PDF](#) | [SSRN PDF](#).
389. David H. Bailey and Jonathan M. Borwein, "Amir Aczel's *Finding Zero*," *Math Drudge*, 13 Jan 2015, available at [HTML](#).
390. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Swiss franc episode exposes risky investments," *Mathematical Investor*, 19 Jan 2015, available at [HTML](#).
391. David H. Bailey and Jonathan M. Borwein, "Does public opinion always agree with scientific fact?," *Math Drudge*, 30 Jan 2015, available at [HTML](#).
392. David H. Bailey and Jonathan M. Borwein, "Is the nature of mathematical proof changing?," *Math Drudge*, 6 Feb 2015, available at [HTML](#).
393. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "How much do investors lose from conflicted advice?," *Mathematical Investor*, 28 Feb 2015, available at [HTML](#).
394. David H. Bailey and Jonathan M. Borwein, "I Prefer Pi: Background for Big Pi Day (3/14/15)," *Math Drudge*, 12 Mar 2015, available at [HTML](#).

395. Jonathan Borwein and David H. Bailey, "Prepared for Pi Day? This year it's a once in a century celebration," *The Conversation*, 13 Mar 2015, available at [HTML](#).
396. David H. Bailey and Jonathan M. Borwein, "Where is ET? Fermi's paradox turns 65," *Math Drudge*, 6 Apr 2015 available at [HTML](#).
397. David H. Bailey and Jonathan M. Borwein, "Where is ET? Fermi's paradox turns 65," *Huffington Post*, 10 Apr 2015, available at [HTML](#).
398. David H. Bailey and Jonathan M. Borwein, "Desperately seeking ET: Fermi's paradox turns 65 (Part II)," *Math Drudge*, 16 Apr 2015, available at [HTML](#).
399. David H. Bailey and Jonathan M. Borwein, "Desperately seeking ET: Fermi's paradox turns 65 (Part II)," *Huffington Post*, 17 Apr 2015, available at [HTML](#).
400. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Lessons from the 'Flash Crash' regulatory fiasco," *Mathematical Investor*, 26 Apr 2015, available at [HTML](#).
401. David H. Bailey and Jonathan M. Borwein, "Lessons from the 'Flash Crash' regulatory fiasco," *Huffington Post*, 27 Apr 2015, available at [HTML](#).
402. David H. Bailey and Jonathan M. Borwein, "Are there 'missing links' in the human family tree?," *Math Drudge*, 2 Jun 2015, available at [HTML](#).
403. David H. Bailey and Jonathan M. Borwein, "How certain are scientists that the earth is many millions of years old?," *Math Drudge*, 2 Jun 2015, available at [HTML](#).
404. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Do individual investors understand Social Security and its overseas counterparts?," *Mathematical Investor*, 16 Jun 2015, available at [HTML](#).
405. David H. Bailey and Jonathan M. Borwein, "How well do individuals understand Social Security (and its overseas counterparts)?," *Huffington Post*, 25 Jun 2015, available at [HTML](#).
406. Jonathan Borwein and David H. Bailey, "Moore's Law is 50 years old but will it continue?," *The Conversation*, 20 Jul 2015, available at [HTML](#).
407. David H. Bailey and Jonathan M. Borwein, "Moore's Law is 50 years old: Will it continue?," *Math Drudge*, 14 Jul 2015, available at [HTML](#).
408. David H. Bailey and Jonathan M. Borwein, "Is US crime soaring? Do gun controls encourage crime? The science of crime statistics," *Math Drudge*, 31 Jul 2015, available at [HTML](#).
409. David H. Bailey and Jonathan M. Borwein, "Cold fusion heats up: Fusion energy and LENR update," *Math Drudge*, 27 Aug 2015, available at [HTML](#).
410. David H. Bailey and Jonathan M. Borwein, "Cold fusion heats up: Fusion energy and LENR update," *Huffington Post*, 28 Aug 2015, available at [HTML](#).
411. David H. Bailey and Jonathan M. Borwein, "Computation and theory of extended Mordell-Tornheim-Witten sums II," *Journal of Approximation Theory*, vol. 197 (Sept. 2015), pg. 115--140, available at [JAT PDF](#) | [Preprint PDF](#).
412. David H. Bailey and Jonathan M. Borwein, "Crandall's computation of the incomplete gamma function and the Hurwitz zeta function with applications to Dirichlet L-series," *Applied Mathematics and Computation*, vol. 268C (Oct 2015), pg. 462-477, preprint draft available at [PDF](#).

413. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Are hedge funds losing their edge?," *Mathematical Investor*, 16 Sep 2015, available at [HTML](#).
414. David H. Bailey and Jonathan M. Borwein, "Interview with Andrea Rossi, LENR energy pioneer," *Math Drudge*, 5 Oct 2015, available at [HTML](#).
415. David H. Bailey and Jonathan M. Borwein, "Interview with Andrea Rossi, LENR energy pioneer," *Huffington Post*, 6 Oct 2015, available at [HTML](#).
416. Naomi Borwein and Jonathan M. Borwein, "Antisocial Networking Kills, Again," *Math Drudge*, 7 Oct 2015, available at [HTML](#).
417. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Is research in finance and economics reproducible?," *Mathematical Investor*, 10 Oct 2015, available at [HTML](#).
418. David H. Bailey and Jonathan M. Borwein, "More mathematics (and Pi) in the media," *Math Drudge*, 3 Dec 2015, available at [HTML](#).
419. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "High noon for 2015 market prophets," *Mathematical Investor*, 24 Dec 2015, available at [HTML](#).
420. David H. Bailey and Jonathan M. Borwein, "Data vs theory: the mathematical battle for the soul of physics," *Math Drudge*, 27 Dec 2015, available at [HTML](#).
421. David H. Bailey and Jonathan M. Borwein, "Data vs theory: The mathematical battle for the soul of physics," *Huffington Post*, 30 Dec 2015, available at [HTML](#).
422. David H. Bailey and Jonathan M. Borwein, "Ancient Indian square roots," in Helaine Selin, ed., *Encyclopedia of the History of Science, Technology and Medicine in Non-Western Cultures*, third edition, Springer, 2016, preprint draft available at [PDF](#).
423. David H. Bailey, Jonathan M. Borwein and Victoria Stodden, "Facilitating reproducibility in scientific computing: Principles and practice," in Harald Atmanspacher and Sabine Maasen, eds, *Reproducibility: Principles, Problems, Practices and Prospects*, John Wiley and Sons, New York, 2016, pg. 205-232. This book received the 2017 Prose Award (Honorable Mention) in the category "Textbook/Best in Physical Sciences and Mathematics." preprint draft available at [PDF](#).
424. David H. Bailey and Jonathan M. Borwein, "Computation and structure of character polylogarithms with applications to character Mordell-Tornheim-Witten sums," *Mathematics of Computation*, vol. 85 (2016), no. 297, pg. 295-324, preprint draft available at [PDF](#).
425. David H. Bailey and Jonathan M. Borwein, "Experimental Mathematics in the Society of the Future," *7th European Mathematics Congress (EMC) on Mathematics in the Society of the Future*, European Mathematical Society, Zurich, Switzerland, 2016, pg. 7--25, preprint draft available at [PDF](#).
426. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "How well does the 'January barometer' work?," *Mathematical Investor*, 21 Jan 2016, available at [HTML](#).
427. David H. Bailey and Jonathan M. Borwein, "How likely is it that scientists are engaged in a conspiracy?," *Math Drudge*, 30 Jan 2016, available at [HTML](#).
428. David H. Bailey and Jonathan M. Borwein, "How likely is it that scientists are engaged in a conspiracy?," *Huffington Post*, 1 Feb 2016, available at [HTML](#).

429. David H. Bailey, Jonathan M. Borwein, Amir Salehipour, Marcos Lopez de Prado and Qiji Zhu, "Backtest overfitting in financial markets," *Automated Trader*, issue 39 (2016), preprint draft available at [Preprint PDF](#) | [SSRN PDF](#).
430. David H. Bailey and Jonathan M. Borwein, "Gravitational waves detected, as predicted by Einstein's mathematics," *Math Drudge*, 11 Feb 2016, available at [HTML](#).
431. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "How well does a 'robot AI' predict the Japanese stock market?," *Mathematical Investor*, 19 Feb 2016, available at [HTML](#).
432. David H. Bailey and Jonathan M. Borwein, "Pi Day 2016," *Math Drudge*, 10 Mar 2016, available at [HTML](#).
433. David H. Bailey and Jonathan M. Borwein, "Pi Day 2016," *Huffington Post*, 14 Mar 2016, available at [HTML](#).
434. David H. Bailey and Jonathan M. Borwein, "Unexpected pattern found in prime number digits," *Math Drudge*, 15 Mar 2016, available at [HTML](#).
435. David H. Bailey and Jonathan M. Borwein, "Sphere packing problem solved in 8 and 24 dimensions," *Math Drudge*, 1 Apr 2016, available at [HTML](#).
436. David H. Bailey and Jonathan M. Borwein, "Space exploration: The future is now," *Math Drudge*, 14 Apr 2016, available at [HTML](#).
437. David H. Bailey and Jonathan M. Borwein, "Space exploration: The future is now," *Huffington Post*, 15 Apr 2016, available at [HTML](#).
438. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Tough times for hedge funds," *Mathematical Investor*, 22 Apr 2016, available at [HTML](#).
439. David H. Bailey and Jonathan M. Borwein, "Why are so many mathematicians also musicians?," *Math Drudge*, 30 Apr 2016, available at [HTML](#).
440. Cuong Nguyen, Cindy Rubio-Gonzalez, Benjamin Mehne, Koushik Sen, Costin Iancu, James Demmel, William Kahan, Wim Lavrijsen, David H. Bailey and David Hough, "Floating-point precision tuning using blame analysis," 38th International Conference on Software Engineering (ICSE 2016), 14-22 May 2016, Austin, Texas, USA, preprint draft available at [PDF](#).
441. David H. Bailey and Jonathan M. Borwein, "Why are so many mathematicians also musicians?," *Huffington Post*, 3 May 2016, available at [HTML](#).
442. Jonathan Borwein and David H. Bailey, "Will computers replace humans in mathematics?," *The Conversation*, 2 Jun 2016, available at [HTML](#).
443. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Jim Zhu, "Where are the billionaire financial academics?," *Mathematical Investor*, 18 Jul 2016, available at [HTML](#).
444. David H. Bailey, "Jonathan Borwein dies at 65," *Math Drudge*, 2 Aug 2016, available at [HTML](#).
445. David H. Bailey, Marcos Lopez de Prado and Jim Zhu, "The folly of panic selling," *Mathematical Investor*, 23 Aug 2016, available at [HTML](#).
446. David H. Bailey, Jonathan M. Borwein, Richard Brent and Mohsen Reisi Ardali, "Reproducibility in computational science: a case study: Randomness of the digits of Pi," *Experimental Mathematics*, 24 Aug 2016, vol. 26, pg. 298-305, available at [DOI](#) | [Preprint PDF](#).

447. David H. Bailey, Jonathan M. Borwein, Jason Kimberley and Watson Ladd, "Computer discovery and analysis of large Poisson polynomials," *Experimental Mathematics*, 27 Aug 2016, vol. 26, pg. 349-363, available at [DOI](#) | [Preprint PDF](#).
448. David H. Bailey, Marcos Lopez de Prado and Jim Zhu, "How difficult is it to design a stock fund based on backtests?" *Mathematical Investor*, 8 Sep 2016, available at [HTML](#).
449. David H. Bailey, "Why science needs the humanities," *Huffington Post*, 18 Oct 2016, available at [HTML](#).
450. David H. Bailey, Marcos Lopez de Prado and Jim Zhu, "Is blockchain technology about to upend the financial world?" *Mathematical Investor*, 21 Oct 2016, available at [HTML](#).
451. David H. Bailey, Marcos Lopez de Prado and Jim Zhu, "The mathematics behind blockchain" *Mathematical Investor*, 21 Oct 2016, available at [HTML](#).
452. David H. Bailey, Marcos Lopez de Prado and Jim Zhu, "Erdos Numbers: A True 'Prince and the Pauper' story" *Mathematical Investor*, 6 Nov 2016, available at [HTML](#).
453. David H. Bailey, "A short history of pi formulas," manuscript, 8 Nov 2016, available at [PDF](#).
454. David H. Bailey, "Asian tigers roar in latest international test results; will the U.S. respond?," *Huffington Post*, 5 Dec 2016, available at [HTML](#).
455. Victoria Stodden, Marcia McNutt, David H. Bailey, Ewa Deelman, Yolanda Gil, Brooks Hanson, Michael A. Heroux, John P.A. Ioannidis and Michela Taufer, "Enhancing reproducibility for computational methods," *Science*, vol. 356, no. 3617 (3 Dec 2016), pg. 1240-1241, available at [PDF](#).
456. David H. Bailey, "How qualified, scientifically, are Trump's appointees?," *Huffington Post*, 23 Dec 2016, available at [HTML](#).
457. David H. Bailey, "Jonathan M. Borwein's Extraordinary Mathematical Career," *Notes of the Canadian Mathematical Society*, Dec 2016, pg. 14-15, available at [PDF](#).
458. David H. Bailey and Jonathan M. Borwein, "A computational mathematics view of space, time and complexity," in Shyam Wuppuluri and Giancarlo Ghirardi, ed., *Space, Time and the Limits of Human Understanding*, Springer, New York, 2017, pg. 403-416, preprint draft available at [PDF](#).
459. David H. Bailey, "Jonathan Borwein: Experimental mathematician," *Experimental Mathematics*, vol. 26 (2017), no. 2, pg. 125-129, preprint draft available at [PDF](#).
460. David H. Bailey, Jonathan M. Borwein and Marcos Lopez de Prado, "Stock portfolio design and backtest overfitting," *Journal of Investment Management*, vol. 15 (2017), no. 1, pg. 75-87, preprint draft available at [Preprint PDF](#) | [SSRN PDF](#).
461. David H. Bailey, Marcos Lopez de Prado and Jim Zhu, "How much of hedge fund profits are taken by management?," *Mathematical Investor*, 2 Jan 2017, available at [HTML](#).
462. David H. Bailey, Marcos Lopez de Prado and Jim Zhu, "Backtest overfitting in smart beta investments," *Mathematical Investor*, 31 Jan 2017, available at [HTML](#).
463. David H. Bailey, Marcos Lopez de Prado and Jim Zhu, "Investment advice from the world's most successful stock picker" *Mathematical Investor*, 28 Feb 2017, available at [HTML](#).
464. David H. Bailey and Jonathan M. Borwein, "Computation and experimental evaluation of Mordell-Tornheim-Witten sum derivatives," *Experimental Mathematics*, published online 17 Mar 2017, pg. 370-376, available at [EM PDF](#) | [Preprint PDF](#).

465. David H. Bailey, "Why science needs the humanities," *Math Scholar*, 23 Mar 2017, available at [HTML](#).
466. David H. Bailey, "Shawn Otto's *The War on Science*," *Math Scholar*, 23 Mar 2017, available at [HTML](#).
467. David H. Bailey, "Are humans or computers better at mathematics?," *Math Scholar*, 23 Mar 2017, available at [HTML](#).
468. David H. Bailey, "Asian tigers roar in the latest TIMSS math-science rankings," *Math Scholar*, 23 Mar 2017, available at [HTML](#).
469. David H. Bailey, "My Search for Ramanujan," *Math Scholar*, 23 Mar 2017, available at [HTML](#).
470. David H. Bailey, "Reproducibility: Principles, Problems, Practices, and Prospects," *Math Scholar*, 23 Mar 2017, available at [HTML](#).
471. David H. Bailey, "Exoplanets, 4 billion-year-old life, Fermi's paradox and zero-one laws," *Math Scholar*, 23 Mar 2017, available at [HTML](#).
472. David H. Bailey, Marcos Lopez de Prado and Jim Zhu, "How accurate are market forecasters?" *Mathematical Investor*, 29 Mar 2017, available at [HTML](#).
473. David H. Bailey, Jonathan M. Borwein, Marcos Lopez de Prado and Qiji Jim Zhu, "The probability of backtest overfitting," *Journal of Computational Finance*, vol. 20, no. 4 (Apr 2017), pg. 39-69, preprint draft available at [SSRN PDF](#) | [Preprint PDF](#).
474. David H. Bailey, "Is the universe fine-tuned for intelligent life?," *Math Scholar*, 1 Apr 2017, available at [HTML](#).
475. David H. Bailey, Marcos Lopez de Prado and Jim Zhu, "Gender, marital status and investment performance," *Mathematical Investor*, 15 May 2017, available at [HTML](#).
476. David H. Bailey, "Carlos Rovelli's *Reality Is Not What It Seems*," *Math Scholar*, 3 Jul 2017, available at [HTML](#).
477. David H. Bailey, "Are Hollywood stars qualified to comment on science?," *Math Scholar*, 9 Jul 2017, available at [HTML](#).
478. David H. Bailey, "Pi and the collapse of peer review," *Math Scholar*, 20 Jul 2017, available at [HTML](#).
479. David H. Bailey, "Does mathematical training pay off in the long run?," *Math Scholar*, 30 Jul 2017, available at [HTML](#).
480. David H. Bailey,* "Which hedge funds actually beat the market?," *Mathematical Investor*, 11 Aug 2017, available at [HTML](#).
481. Gordon Bell, David H. Bailey, Jack Dongarra, Alan H. Karp and Kevin Walsh, "A look back on 30 years of the Gordon Bell Prize," *International Journal of High Performance Computing Applications*, vol. 3 (2017), no. 6, pg. 469-484, preprint draft available at [PDF](#).
482. David H. Bailey, "Origin of decimal arithmetic with zero pushed back to 3rd century CE," *Math Scholar*, 15 Sep 2017, available at [HTML](#).
483. David H. Bailey,* "Charts and technical analysis: Do they work?," *Mathematical Investor*, 18 Sep 2017, available at [HTML](#).
484. David H. Bailey, "Fibonacci: A man of numbers," *Math Scholar*, 12 Oct 2017, available at [HTML](#).

485. David H. Bailey,* "Poor investor performance: What can be done?," *Mathematical Investor*, 13 Oct 2017, available at [HTML](#).
486. David H. Bailey, "New Go-playing program teaches itself, beating previous program 100-0," *Math Scholar*, 19 Oct 2017, available at [HTML](#).
487. David H. Bailey,* "Will artificial intelligence upend the financial world?," *Mathematical Investor*, 21 Oct 2017, available at [HTML](#).
488. David H. Bailey, "Fine tuning and Fermi's paradox," *Math Scholar*, 22 Nov 2017, available at [HTML](#).
489. David H. Bailey,* "How is big data impacting the finance world?," *Mathematical Investor*, 11 Dec 2017, available at [HTML](#).
490. David H. Bailey, "The future of artificial intelligence: Utopia or dystopia?," *Math Scholar*, 21 Dec 2017, available at [HTML](#).
491. David H. Bailey,* "Can the January effect be exploited in the market?," *Mathematical Investor*, 2 Jan 2018, available at [HTML](#).
492. David H. Bailey,* "Can mutual fund investors beat the market?," *Mathematical Investor*, 22 Jan 2018, available at [HTML](#).
493. David H. Bailey, "Evolutionary computing and artificial intelligence," *Math Scholar*, 23 Jan 2018, available at [HTML](#).
494. David H. Bailey, Jonathan M. Borwein, Amir Salehipour and Marcos Lopez de Prado, "Evaluation and ranking of market forecasters," *Journal of Investment Management*, vol. 16, no. 2 (Apr 2018), pg. 47-64, preprint draft available at [Preprint PDF](#) | [SSRN PDF](#).
495. David H. Bailey, "Pinker's *Enlightenment Now*: Humanism and scientific progress," *Math Scholar*, 28 Feb 2018, available at [HTML](#).
496. David H. Bailey, "Has cosmic fine-tuning been refuted?," *Math Scholar*, 14 Mar 2018, available at [HTML](#).
497. David H. Bailey,* "Does indexing threaten the market?," *Mathematical Investor*, 17 Mar 2018, available at [HTML](#).
498. David H. Bailey,* "*Advances in Financial Machine Learning*," *Mathematical Investor*, 21 Mar 2018, available at [HTML](#).
499. David H. Bailey, "Noted mathematician and two computer scientists win prestigious awards," *Math Scholar*, 21 Mar 2018, available at [HTML](#).
500. David H. Bailey,* "The most important plot in finance," *Mathematical Investor*, 1 Apr 2018, available at [HTML](#).
501. David H. Bailey, "Amateur mathematician makes key advance in classic graph theory problem," *Math Scholar*, 19 Apr 2018, available at [HTML](#).
502. David H. Bailey,* "Economics, finance and pseudoscience," *Mathematical Investor*, 29 Apr 2018, available at [HTML](#).
503. David H. Bailey, "Will experimental anomalies lead to new physics?," *Math Scholar*, 30 Apr 2018, available at [HTML](#).
504. David H. Bailey, "Chromosomes, DNA and human evolution," *Math Scholar*, 14 May 2018, available at [HTML](#).
505. David H. Bailey, "Pseudoscience from the political left and right," *Math Scholar*, 19 Jun 2018, available at [HTML](#).

506. David H. Bailey, "Fermi's paradox and the Copernican principle," *Math Scholar*, 28 Jun 2018, available at [HTML](#).
507. David H. Bailey, "Does beautiful mathematics lead physics astray?," *Math Scholar*, 29 Jun 2018, available at [HTML](#).
508. David H. Bailey,* "Are economics and finance 'lost in math'?," *Mathematical Investor*, 6 Jul 2018, available at [HTML](#).
509. David H. Bailey, "The rise of pay-to-publish journals and the decline of peer review," *Math Scholar*, 14 Jul 2018, available at [HTML](#).
510. David H. Bailey,* "Are target-date funds the answer?," *Mathematical Investor*, 21 July 2018, available at [HTML](#).
511. David H. Bailey,* "Mutual fund performance and survivorship bias," *Mathematical Investor*, 3 Aug 2018, available at [HTML](#).
512. David H. Bailey, "Does the string theory multiverse really exist?," *Math Scholar*, 10 Aug 2018, available at [HTML](#).
513. David H. Bailey,* "Doomsayers and market prophets," *Mathematical Investor*, 29 Aug 2018, available at [HTML](#).
514. David H. Bailey, "New books and articles on the 'great silence'," *Math Scholar*, 7 Sep 2018, available at [HTML](#).
515. David H. Bailey,* "Hedge fund performance report card," *Mathematical Investor*, 13 Sep 2018, available at [HTML](#).
516. David H. Bailey, "Simple proofs of great theorems," *Math Scholar*, 29 Sep 2018, available at [HTML](#).
517. David H. Bailey, "Simple proofs: The irrationality of pi," *Math Scholar*, 29 Sep 2018, available at [HTML](#).
518. David H. Bailey, "Simple proofs: The fundamental theorem of algebra," *Math Scholar*, 29 Sep 2018, available at [HTML](#).
519. David H. Bailey, "Simple proofs: The impossibility of trisection," *Math Scholar*, 29 Sep 2018, available at [HTML](#).
520. David H. Bailey,* "Profits, prophets and pseudoscience," *Mathematical Investor*, 3 Nov 2018, available at [HTML](#).
521. David H. Bailey,* "The problem with financial oracles," *Mathematical Investor*, 5 Nov 2018, available at [HTML](#).
522. David H. Bailey, "US leads but China rises in latest Top500 Supercomputer list," *Math Scholar*, 16 Nov 2018, available at [HTML](#).
523. David H. Bailey, "2018: The year that artificial intelligence came of age," *Math Scholar*, 29 Dec 2018, available at [HTML](#).
524. David H. Bailey, "Is scientific progress real?," *Math Scholar*, 9 Jan 2019, available at [HTML](#).
525. David H. Bailey,* "Jack Bogle: The apostle of index investing," *Mathematical Investor*, 18 Jan 2019, available at [HTML](#).
526. David H. Bailey, "Simple proofs: The fundamental theorem of calculus," *Math Scholar*, 2 Feb 2019, available at [HTML](#).

527. David H. Bailey, "Simple proofs: Archimedes' calculation of pi," *Math Scholar*, 9 Feb 2019, available at [HTML](#).
528. David H. Bailey,* "Mutual fund report card: February 2019," *Mathematical Investor*, 15 Feb 2019, available at [HTML](#).
529. David H. Bailey, Judith Borwein, Naomi Simone Borwein and Richard P. Brent, "Jonathan Borwein: Mathematician extraordinaire," *Proceedings of the Jonathan Borwein Memorial Conference*, to appear, 20 Feb 2019, preprint draft available at [PDF](#).
530. David H. Bailey, "New result for Mordell's cube sum problem," *Math Scholar*, 15 Mar 2019, available at [HTML](#).
531. David H. Bailey, "LENR Energy: Science or pseudoscience?," *Math Scholar*, 18 Mar 2019, available at [HTML](#).
532. David H. Bailey, "Karen Uhlenbeck wins the Abel Prize," *Math Scholar*, 19 Mar 2019, available at [HTML](#).
533. David H. Bailey,* "Majority of highest-earning hedge fund managers and traders are at quant firms," *Mathematical Investor*, 20 Mar 2019, available at [HTML](#).
534. David H. Bailey, "LENR: A skeptical perspective," *Math Scholar*, 24 Mar 2019, available at [HTML](#).
535. David H. Bailey,* "What is the best training for finance PhDs?," *Mathematical Investor*, 27 Mar 2019, available at [HTML](#).
536. David H. Bailey,* "Ray Dalio on why capitalism must be reformed," *Mathematical Investor*, 6 Apr 2019, available at [HTML](#).
537. David H. Bailey, Neil Burgess, Jack Dongarra, Alyson Fox, Jeffrey A. F. Hittinger and Cindy Rubio-Gonzalez, "Variable precision in mathematical and scientific computing," proposal for an ICERM workshop, 10 Apr 2019, available at [PDF](#).
538. David H. Bailey, "An $n \log(n)$ algorithm for multiplication," *Math Scholar*, 12 Apr 2019, available at [HTML](#).
539. David H. Bailey,* "The seven reasons most econometric investments fail," *Mathematical Investor*, 16 Apr 2019, available at [HTML](#).
540. David H. Bailey, "P-hacking and scientific reproducibility," *Math Scholar*, 20 Apr 2019, available at [HTML](#).
541. David H. Bailey,* "P-hacking and backtest overfitting," *Mathematical Investor*, 23 Apr 2019, available at [HTML](#).
542. David H. Bailey, "Google AI system proves over 1200 mathematical theorems," *Math Scholar*, 26 Apr 2019, available at [HTML](#).
543. David H. Bailey, "Pi, climate change denial and creationism," *Math Scholar*, 29 Apr 2019, available at [HTML](#).
544. David H. Bailey, "Researchers use 'magic functions' to prove sphere-packing results," *Math Scholar*, 17 May 2019, available at [HTML](#).
545. David H. Bailey, "Computational tools help create new living organism," *Math Scholar*, 18 May 2019, available at [HTML](#).
546. David H. Bailey,* "Technical analysis in major brokerages and financial media," *Mathematical Investor*, 21 May 2019, available at [HTML](#).

547. David H. Bailey, "Mathematicians prove result tied to the Riemann hypothesis," *Math Scholar*, 23 May 2019, available at [HTML](#).
548. David H. Bailey,* "Frank Fabozzi blasts the state of academic economics and finance," *Mathematical Investor*, 6 Jun 2019, available at [HTML](#).
549. David H. Bailey, "Homo Deus: A brief history of tomorrow," *Math Scholar*, 18 Jun 2019, available at [HTML](#).
550. David H. Bailey, "Protein folding via machine learning may spawn medical advances," *Math Scholar*, 19 Jul 2019, available at [HTML](#).
551. David H. Bailey, "How fast is the universe expanding? New results deepen the controversy," *Math Scholar*, 8 Aug 2019, available at [HTML](#).
552. David H. Bailey, "How many habitable exoplanets are there, really?," *Math Scholar*, 21 Aug 2019, available at [HTML](#).
553. David H. Bailey,* "Interview with Marcos Lopez de Prado," *Mathematical Investor*, 5 Sep 2019, available at [HTML](#).
554. David H. Bailey,* "Go with big data and machine learning, or leave finance to those who do," *Mathematical Investor*, 6 Sep 2019, available at [HTML](#).
555. David H. Bailey,* "Will investors outlive their savings?," *Mathematical Investor*, 15 Sep 2019, available at [HTML](#).
556. David H. Bailey, "New paper proves 80-year-old approximation conjecture," *Math Scholar*, 23 Sep 2019, available at [HTML](#).
557. David H. Bailey, "Reproducibility and variable precision computing," *Supercomputing 19: Workshop on Computational Reproducibility at Exascale*, 30 Sep 2019, preprint draft available at [PDF](#).
558. David H. Bailey,* "The 'Master of the Robots' on machine learning in finance," *Mathematical Investor*, available at [HTML](#).
559. David H. Bailey, "Pi as the limit of n-sided circumscribed and inscribed polygons," *Math Scholar*, 14 Oct 2019, available at [HTML](#).
560. David H. Bailey, "Quantum supremacy has been achieved; or has it?," *Math Scholar*, 28 Oct 2019, available at [HTML](#).
561. David H. Bailey,* "Quantum supremacy has been achieved; or has it?," *Mathematical Investor*, 28 Oct 2019, available at [HTML](#). This is essentially identical to the previous item.
562. David H. Bailey, "The scientific debate is over: it is time to act on climate change," *Math Scholar*, 3 Nov 2019, available at [HTML](#).
563. David H. Bailey,* "Feast or famine? The financial risks of climate change," *Mathematical Investor*, 6 Nov 2019, available at [HTML](#).
564. David H. Bailey, "Jim Simons: The man who solved the market," *Math Scholar*, 5 Dec 2019, available at [HTML](#).
565. David H. Bailey,* "Jim Simons: The man who solved the market," *Mathematical Investor*, 5 Dec 2019, available at [HTML](#). This is essentially identical to the previous item.
566. David H. Bailey,* "Marcos Lopez de Prado testifies before U.S. Congress," *Mathematical Investor*, 6 Dec 2019, available at [HTML](#).
567. David H. Bailey, "New factorization advances: Is your bank account safe?," *Math Scholar*, 15 Dec 2019, available at [HTML](#).

568. David H. Bailey, "Do probability arguments refute evolution?," *Math Scholar*, 3 Jan 2020, available at [HTML](#).
569. David H. Bailey, "Universe or multiverse? The war rages on," *Math Scholar*, 15 Jan 2020, available at [HTML](#).
570. David H. Bailey,* "Is AI coming after your job?," *Math Scholar*, 30 Jan 2020, available at [HTML](#).
571. David H. Bailey, "MPFUN2015: A thread-safe arbitrary precision package (full documentation)," manuscript, 7 Feb 2020, available at [PDF](#).
572. David H. Bailey, "Why are people embracing astrology in an age of science?," *Math Scholar*, 16 Mar 2020, available at [HTML](#).
573. David H. Bailey, "From Analysis to Visualization: A Celebration of the Life and Legacy of Jonathan M. Borwein," *Math Scholar*, 28 Mar 2020, available at [HTML](#).
574. David H. Bailey, Jonathan M. Borwein, Amir Salehipour and Marcos Lopez de Prado, "Do financial gurus produce reliable forecasts?," *From Analysis to Visualization: A Celebration of the Life and Legacy of Jonathan M. Borwein*, David H. Bailey, Naomi Simone Borwein, Richard P. Brent, Regina S. Burachik, Judy-anne Heather Osborn, Brailey Sims and Qiji J. Zhu, ed., Springer Proceedings of Mathematics and Statistics, vol. 313, Springer, 2020, 255-274, preprint draft available at [PDF](#).
575. David H. Bailey,* "Exit strategies for Covid-19," *Mathematical Investor*, 19 Apr 2020, available at [HTML](#).
576. David H. Bailey, "Pseudoscience in the age of Coronavirus," *Math Scholar*, 28 Apr 2020, available at [HTML](#).
577. David H. Bailey, "The origin of life in an inflationary universe," *Math Scholar*, 4 May 2020, available at [HTML](#).
578. David H. Bailey, "Reproducibility and variable precision computing," *International Journal of High Performance Computing Applications*, 8 July 2020, [DOI copy](#), preprint draft available at [PDF](#).
579. David H. Bailey, "Covid-19 and the worth of a human life," *Math Scholar*, 3 Jun 2020, available at [HTML](#).
580. David H. Bailey,* "Day-trading in the age of coronavirus," *Mathematical Investor*, 10 Jul 2020, available at [HTML](#).
581. David H. Bailey, "How old is the universe? New results clash," *Math Scholar*, 1 Aug 2020, available at [HTML](#).
582. David H. Bailey, "Two mathematicians' triple play," *Math Scholar*, 3 Aug 2020, available at [HTML](#).
583. David H. Bailey, "Peter Borwein dies at 67," *Math Scholar*, 29 Aug 2020, available at [HTML](#).
584. David H. Bailey, "Can computers do mathematical research?," *Math Scholar*, 1 Sep 2020, available at [HTML](#).
585. David H. Bailey, "Do odd perfect numbers exist? New results on an old problem," *Math Scholar*, 22 Sep 2020, available at [HTML](#).
586. David H. Bailey, "Another miserable year for market forecasters," *Mathematical Investor*, 20 Dec 2020, available at [HTML](#).

587. David H. Bailey, "Machine-learning breakthrough in protein folding," *Math Scholar*, 30 Dec 2020, available at [HTML](#).
588. David H. Bailey, "Jonathan Borwein: Renaissance mathematician," *American Mathematical Monthly*, to appear, 21 Jan 2021, preprint draft available at [PDF](#).
589. David H. Bailey,* "The failure of anomaly indicators in finance," *Mathematical Investor*, 1 Feb 2021, available at [HTML](#).
590. David H. Bailey, "Pandemics, misinformation and pseudoscience," *Math Scholar*, 2 Mar 2021, available at [HTML](#).
591. David H. Bailey, "Two researchers share Abel prize for work in discrete mathematics and computer science," *Math Scholar*, 17 Mar 2021, available at [HTML](#).
592. David H. Bailey, "Aho and Ullman receive the ACM Turing Award," *Math Scholar*, 1 Apr 2021, available at [HTML](#).
593. David H. Bailey, "Muon result may rewrite standard model of physics," *Math Scholar*, 7 Apr 2021, available at [HTML](#).
594. David H. Bailey, "AI system finds counterexamples to graph theory conjectures," *Math Scholar*, 20 May 2021, available at [HTML](#).
595. David H. Bailey, "Bach as mathematician," *Math Scholar*, 4 Jun 2021, available at [HTML](#).
596. David H. Bailey,* "Can astrology predict financial markets?," *Mathematical Investor*, 17 Jun 2021, available at [HTML](#).
597. David H. Bailey, "Computer theorem prover verifies sophisticated new result," *Math Scholar*, 30 Jul 2021, available at [HTML](#).
598. David H. Bailey, "Finding large Poisson polynomials using four-level variable precision," *Correctness 2021: 5th International Workshop on Software Correctness for HPC Applications*, 10 Nov 2021, preprint draft available at [PDF](#).
599. David H. Bailey and Scott Chapman, "Introduction to the special issue," *American Mathematical Monthly*, vol. 128 (2021), no. 9, pg. 772.
600. David H. Bailey, "Jonathan Borwein: Renaissance mathematician," *American Mathematical Monthly*, vol. 128 (2021), no. 9, pg. 773-779.
601. Marcos Lopez de Prado and David H. Bailey, "The false strategy theorem: A financial application of experimental mathematics," *American Mathematical Monthly*, vol. 128 (2021), no. 9, pg. 825-831, preprint draft available at [SSRN PDF](#).
602. David H. Bailey, "The brave new world of probability and statistics," *Math Scholar*, 3 Nov 2021, available at [HTML](#).
603. David H. Bailey and Marcos Lopez de Prado, "How 'backtest overfitting' in finance leads to false discoveries," *Significance*, Royal Statistical Society, vol. 18, no. 6 (Dec 2021), pg. 22--25. SSRN preprint draft available at [PDF](#).
604. David H. Bailey,* "Backtest overfitting and the post-hoc probability fallacy," *Mathematical Investor*, 1 Feb 2022, available at [HTML](#).
605. David H. Bailey, "Latest experimental data compounds the Hubble constant discrepancy," *Math Scholar*, 14 Feb 2022, available at [HTML](#).
606. David H. Bailey,* "Active mutual funds underperform passive funds, again," *Mathematical Investor*, 3 Mar 2022, available at [HTML](#).

607. David H. Bailey, "A catalogue of mathematical formulas involving pi, with analysis," *Journal of Numerical Analysis and Approximation Theory*, vol. 50 (14 Mar 2022), pg. 108-125, preprint draft available at [PDF](#) | Fortran programs (assuming [MPFUN-MPFR](#) has been installed): [piform1.f90](#) | [piform2.f90](#) | [piform3.f90](#).
608. David H. Bailey, "Where are the extraterrestrials? Fermi's paradox, diversity and the origin of life," *Math Scholar*, 18 Mar 2022, available at [HTML](#).
609. David H. Bailey, "Advances in artificial intelligence raise major questions," *Math Scholar*, 23 Jun 2022, available at [HTML](#).
610. David H. Bailey, "2022 Fields Medalists: Diverse backgrounds, breakthrough mathematics," *Math Scholar*, 6 Jul 2022, available at [HTML](#).
611. David H. Bailey, "How safe are cryptocurrency investments?," *Mathematical Investor*, 17 Aug 2022, available at [HTML](#).
612. David H. Bailey, "Breakthrough Prizes honor AlphaFold and quantum computing pioneers," *Math Scholar*, 26 Sep 2022, available at [HTML](#).
613. David H. Bailey, "Are hedge funds losing their hedge?," *Mathematical Investor*, 22 Oct 2022, available at [HTML](#).
614. David H. Bailey, "Machine learning program finds new matrix multiplication algorithms," *Math Scholar*, 26 Oct 2022, available at [HTML](#).
615. David H. Bailey, "Can factor investing become scientific?," *Mathematical Investor*, 30 Jan 2023, available at [HTML](#).
616. David H. Bailey, "Can ChatGPT prove math theorems?," *Math Scholar*, 2 Feb 2023, available at [HTML](#).
617. David H. Bailey, "Review of The Failures of Mathematical Anti-Evolution," *Reports of the National Center for Scientific Education*, vol. 23, no. 1 (Winter 2023), available at [PDF](#).
618. David H. Bailey, "Major brokerages and news media feature technical analysis," *Mathematical Investor*, 15 Feb 2023, available at [HTML](#).
619. David H. Bailey, "Peter Borwein: A visionary mathematician," *Notices of the American Mathematical Society*, Apr 2023, pg. 610-613, available at [PDF](#).
620. David H. Bailey, "A compendium of BBP-type formulas for mathematical constants," updated 4 Apr 2023, available at [PDF](#).
621. David H. Bailey, "Chart-watching market timers fail again," *Mathematical Investor*, 2 Jul 2023, available at [HTML](#).
622. David H. Bailey, "Large Poisson polynomials: Computation, results and analysis," manuscript, 8 Jul 2023, available at [PDF](#).
623. David H. Bailey, "Is modern science socially constructed and forever tentative?," *Math Scholar*, 8 Apr 2023, available at [HTML](#).
624. David H. Bailey, "DeepMind program discovers new sorting algorithms," *Math Scholar*, 12 Jun 2023, available at [HTML](#).
625. David H. Bailey, "Aliens made this rock: The post-hoc probability fallacy in biology, finance and cosmology," *Math Scholar*, 11 Oct 2023, available at [HTML](#).
626. David H. Bailey, "Aliens made this rock: The post-hoc probability fallacy in biology, finance and cosmology," *Mathematical Investor*, 11 Oct 2023, available at [HTML](#). (Same as previous item.)

- 627. David H. Bailey, "MPFUN2020: A new thread-safe arbitrary precision package (full documentation)," manuscript, updated 5 Dec 2023, available at [PDF](#).
- 628. David H. Bailey, "2023: Another miserable year for market forecasters," *Mathematical Investor*, 23 Dec 2023, available at [HTML](#); also *Intalcon*, 11 Jan 2024, available at [HTML](#).
- 629. David H. Bailey, "Progress in troubled times: Good news in science, medicine and society," *Math Scholar*, 4 Jan 2024, available at [HTML](#).
- 630. David H. Bailey, "Overcoming experimenter bias in scientific research," *Math Scholar*, 3 Feb 2024, available at [HTML](#).
- 631. David H. Bailey, "Overcoming experimenter bias in scientific research and finance," *Mathematical Investor*, 4 Feb 2024, available at [HTML](#).