

James Harold Davenport Publications

Google Scholar 19/Jan/2020: 3986 citations, h-index 28, i10-index 88

Books etc:

- (B.1) On the Integration of Algebraic Functions. Springer Lecture Notes in Computer Science 102, Berlin-Heidelberg-New York, 1981. Russian translation “Интегрирование алгебраических функций” (Интегрирование алгебраических функций) MIR Moscow, 1985.
- (B.2) The Higher Arithmetic (5th. ed.), by H. Davenport, edited D.J. Lewis & J.H. Davenport. Cambridge University Press, 1982. MR 84a:10001.
- (B.3) PowerMath: the First Symbolic Manipulation Program for the Macintosh (with Roth C.E.). Brainpower Inc., Ventura, Calif. 1985.
- (B.4) Calcul Formel (with Siret Y. and Tournier E.). Masson, Paris, 1986; 2nd. edition 1993 (ISBN 2-225-84200-0). English translation “Computer Algebra” Academic Press, London, 1988 (ISBN 0-12-204230-1). Russian translation “Комп’ютерная Алгебра” (Компьютерная Алгебра) MIR Moscow, 1991 (ISBN 5-03-001658-9). 2nd. English edition Academic Press, 1993 (ISBN 0-12-209232-8)*.
- (B.5) The Higher Arithmetic (6th. ed.), by H. Davenport, edited J.H. Davenport, C.U.P., 1992 (ISBN 0-521-42227-2). Zbl. 751.11001. Italian trans. “Arithmetica Superiore: Un’introduzione alla teoria dei numeri”, with a preface by A. Schinzel, Zanichelli, Bologna, 1994 (ISBN 88-08-09154-6).
- (B.6) The Higher Arithmetic (7th. ed.), by H. Davenport, edited J.H. Davenport, C.U.P., 1999 (ISBN 0-521-63446-6).
- (B.7) The Higher Arithmetic (8th. ed.), by H. Davenport, edited J.H. Davenport, C.U.P., 2008 (ISBN 978-0-521-72236-0).

Edited and Compiled Books:

- (b.8) Proceedings EUROCAL ’87 (editor). Springer Lecture Notes in Computer Science 378, 1989.
- (b.9) Mathematical Knowledge Management 2003 (ed. Asperti,A., Buchberger,B. & Davenport,J.H.), Springer Lecture Notes in Computer Science 2594, Springer-Verlag, 2003. ISBN 978-3-540-00568-1.
- (b.10) Proceedings of the 22nd OpenMath Workshop (Grand Bend, Ontario, 2009). University of Bath Press and OpenMath Society, 2009. ISBN 978-1-86197-172-2.
- (b.11) Programming and Discrete Mathematics (compiled by J.H. Davenport, I.G. Graham and G.K. Sankaran from works by Chapman and Epp), Cengage, 2009.
- (b.12) Proceedings CICM 2011 (with W.M. Farmer, F. Rabe & J. Urban), Springer Lecture Notes in Artificial Intelligence 6824, 2011. ISBN 978-3-642-22673-1.
- (b.13) Programming and Discrete Mathematics (compiled by J.H. Davenport, I.G. Graham and G.K. Sankaran from works by Chapman and Epp), Cengage, 2012.
- (b.14) MathUI, OpenMath, PLMMS and ThEdu Workshops and Work in Progress at the Conference on Intelligent Computer Mathematics 2013 (with C. Lange, D. Aspinall, J. Carette, A. Kohlhase, M. Kohlhase, P. Libbrecht, P. Quaresma, F. Rabe, P. Sojka, I. Whiteside and W. Windsteiger), CEUR Workshop Proceedings, Aachen, 2013. <http://ceur-ws.org/Vol-1010/>.
- (b.15) Proceedings CICM 2014 (with S.M. Wattt, A.P. Sexton, P. Sojka & J. Urban), Springer Lecture Notes in Artificial Intelligence 8543, 2014. ISBN 978-3-642-22673-1.
- (b.16) CICM-WS-WiP 2014: Workshop and Work in Progress Papers at CICM 2014 (with M. England, A. Kohlhase, M. Kohlhase, P. Libbrecht, W. Neuper, P. Quaresma, A.P. Sexton, P. Sojka,J. Urban, S.M. Watt). <http://ceur-ws.org/Vol-1186/>.
- (b.17) Programming and Discrete Mathematics (compiled by J.H. Davenport, G.K. Sankaran & A. Spence, including work by Chapman), Cengage, 2014.
- (b.18) Programming and Discrete Mathematics (compiled by J.H. Davenport, G.K. Sankaran & M.A. Freitag, including [different] work by Chapman), Cengage, 2014.

* Reviewed in Computing Reviews 9404-0219.

- (b.19) Proceedings SYNASC 2015 (with L. Kovács and others), IEEE Computer Press, 2016.
- (b.20) Proceedings SCSS 2016 (with F. Ghourabi), EPiC Series in Computing 39, 2016.
http://easychair.org/publications/volume/SCSS_2016.
- (b.21) Proceedings SYNASC 2016 (with L. Kovács and others), IEEE Computer Press, 2017.
- (b.22) Proceedings SC-Square 2016: Satisfiability Checking meets Symbolic Computation (with E. Abraham & P. Fontaine). <http://ceur-ws.org/Vol-1804/>.
- (b.23) Proceedings ICMS 2018 (with M. Kauers, G. Labahn & J. Urban), Springer Lecture Notes in Computer Science 10931, Springer, Cham, 2018. ISBN 978-3-319-96417-1.

Refereed Journals and Conferences:

- (R.1) The Quadratic Hash Method when the table size is a power of 2 (with Hopgood F.R.A.). *Computer Journal* 15 (1973) pp. 314–5.
- (R.2) Numerical Tables on Elliptic Curves (with Swinnerton-Dyer H.P.F., Stephens N.M., Vélu J., Coghlan F.B., Atkin A.O.L. and Tingley D.J.). In: *Modular Functions of One Variable IV (Proceedings Antwerp 1972)*, Springer Lecture Notes in Mathematics 476, Springer-Verlag, Berlin-Heidelberg-New York, 1975. MR 52 (1976) #10557.
- (R.3) Symbolic Integration — the Dust Settles? (A survey paper on algorithms for indefinite integration; with Norman A.C). *Proc. EUROSAM 79 (Springer Lecture Notes in Computer Science 72)* pp. 398–407.
- (R.4) The Computerisation of Algebraic Geometry. *Proc. EUROSAM 79 (Springer Lecture Notes in Computer Science 72)* pp. 119–133.
- (R.5) Algorithms for the Integration of Algebraic Functions. *Proc. EUROSAM 79 (Springer Lecture Notes in Computer Science 72)* pp. 415–425.
- (R.6) MODLISP — an Introduction (with Jenks R.D). *Proc. LISP80, The LISP Conference, P.O.Box 487, Redwood Estates, California 95044, 1980 (reprinted in SIGSAM Bulletin 15 (1981) 1 pp. 11–20)*.
- (R.7) Effective Mathematics — the Computer Algebra viewpoint. *Proc. Constructive Mathematics Conference 1980 (ed. F Richman) (Springer Lecture Notes in Mathematics 873)* pp. 31–43.
- (R.8) Factorization over finitely generated fields (with Trager B.M.) *Proc. SYMSAC 81 (ACM, New York)* pp. 200–205.
- (R.9) Table Erratum 587. *Math. Comp.* 38 (1982) pp. 335–336.
- (R.10) On the Parallel Risch Algorithm (I). *Proc. EUROCAM '82 (Springer Lecture Notes in Computer Science 144)* pp. 144–158. Zbl 538.68024.
- (R.11) Integration — where is the Theory going? *Proc. EUROCAL 83 (Springer Lecture Notes in Computer Science 162)* pp. 2–11.
- (R.12) Factorization of Sparse Polynomials. *Proc. EUROCAL 83 (Springer Lecture Notes in Computer Science 162)* pp. 214–224.
- (R.13) Quelques Difficultés de Calcul Formel. “Calcul Formel et Automatique” (ed. P. Chenin), Éditions CNRS, Paris, 1987, pp. 47–66.
- (R.14) Calcul modulaire. “Calcul Formel et Automatique” (ed. P. Chenin), Éditions CNRS, Paris, 1987, pp. 67–78.
- (R.15) Implémentation VLSI d’algorithmes modulaires issus du Calcul Formel (with Robert Y.). “Calcul Formel et Automatique” (ed. P. Chenin), Éditions CNRS, Paris, 1987, pp. 219–237.
- (R.16) Integration — Numerical and Formal approaches. *Proc. Languages, Methods and Tools in Scientific and Engineering Computation (ed. B. Ford, J.C. Rault and F. Thomassen), North-Holland, 1984,* pp. 417–427. Zbl 547.65010.
- (R.17) Intégration des Fonctions Élémentairement Transcendentes sur une courbe algébrique. *Annales de l’Institut Fourier (Grenoble)* 34 (1984) pp. 271–276.
- (R.18) Factorization of Medium-sized Integers (with Macmillan R.J.). *Computer Journal* 27 (1984) pp. 83–84.
- (R.19) VLSI and Computer Algebra: The GCD Example (with Robert Y.). In “Dynamical System and Cellular Automata”, Academic Press, 1985, pp. 359–367.
- (R.20) $y' + fy = g$. *Proc. EUROSAM 1984 (Springer Lecture Notes in Computer Science 174)* pp. 341–350. Zbl 588.68013.

- (R.21) Programming Considerations (with D. Coppersmith). Section XI of Coppersmith, D., Fast Evaluation of Logarithms in Fields of Characteristic Two. *IEEE Trans. Information Theory* IT-30(1984) pp. 587–594.
- (R.22) Closed Form Solutions of Ordinary Differential Equations. Proc. RSYMSAC, Wako-shi, Tokyo, Japan (1984) pp. 15–1 — 15–12. A revised version appears in “Symbolic and Algebraic Manipulation by Computers”, World Scientific Publ. Co., Singapore, 1985.
- (R.23) Symbolic and Numeric Manipulation of Integrals. Proc. IBM Deutschland Conf. “Accurate Scientific Computation” March 1985 (Springer Lecture Notes in Computer Science 235, 1986), pp. 168–180.
- (R.24) HEUGCD: How Elementary Upperbounds Generate Cheaper Data (with Padget J.A.). Proc. EUROCAL ’85 (Springer Lecture Notes in Computer Science 204) pp. 18–28. Zbl 603.68037.
- (R.25) Elementary and Liouvillian Solutions of Linear Differential Equations (with Singer M.F.). Proc. EUROCAL ’85 (Springer Lecture Notes in Computer Science 204), pp. 595–596.
- (R.26) Mathematics for Problem Solving Environments: Computer Algebra. Proc. IFIP WG 2.5 “Problem Solving Environments for Scientific Computation” (ed. B. Ford & F. Chatelin), North-Holland, 1987, pp. 101–112 (discussion pp. 113–115).
- (R.27) The Risch Differential Equation Problem. *SIAM J. Computing* 15(1986) pp. 903–918.
- (R.28) The Parallel Risch Algorithm (II) (with Trager B.M.). *ACM Trans. Mathematical Software* 11(1985) pp. 356–362.
- (R.29) An Application of Factoring (with Coppersmith D.). *J. Symbolic Computing* 1(1985) pp. 241–243.
- (R.30) On Numbers and Polynomials (with Padget J.A.). Proc. “Le Calcul Demain”, Masson and Wiley, 1985, pp. 49–53. Zbl 677.68030.
- (R.31) Elementary and Liouvillian Solutions of Linear Differential Equations (with Singer M.F.). *J. Symbolic Computing* 2(1986) pp. 237–260.
- (R.32) Computer Algebra : A Formula is worth 10,000 Numbers. Proc. 7th. Int. Conference Analysis and Optimization of Systems, 1986 (Springer Lecture Notes in Control and Information Sciences 83) pp. 455–468.
- (R.33) The Design and Implementation of PowerMath (with Roth C.E.). Proc. SYMSAC 86 (ACM, New York) pp. 13–15.
- (R.34) The Bath Algebraic Number Package (with Abbott J.A. and Bradford R.J.). Proc. SYMSAC 86 (ACM, New York) pp. 250–253.
- (R.35) Real Quantifier Elimination is Doubly Exponential (with Heintz J.). *J. Symbolic Comp.* **5** (1988) pp. 29–35. Zbl 663.03015.
- (R.36) Factorisation of Polynomials: Old Ideas and Recent Results (with Abbott J.A. and Bradford R.J.). Proc. IBM Deutschland Conf. “Trends in Computer Algebra” (Springer Lecture Notes in Computer Science 296, 1988) pp. 92–118.
- (R.37) Integration in Closed Form. *Computers in Mathematical Research (IMA Conference (NS) 14* (ed. N.M. Stephens & M.P. Thorne), Clarendon Press, Oxford, 1988, pp. 119–134.
- (R.38) Computer Algebra Applied to Itself (with Coppersmith D.). *J. Symbolic Comp.* **6** (1988) pp. 127–132.
- (R.39) A remark on a paper by Wang: Another Surprising Property of 42 (with J.A. Abbott). *Math. Comp.* **51**(1988) pp. 837–839.
- (R.40) Algebraic Computations and Structures. *Computer Algebra (Lecture Notes in Pure and Applied Mathematics 113*, ed. D.V. Chudnovsky & R.D. Jenks, Marcel Dekkar, New York, 1989) pp. 129–144. Zbl 677.68029.
- (R.41) A Geometric Algebra System (with A. Bowyer, P.S. Milne, J.A. Padget and A.F. Wallis). *Geometric Reasoning* (ed. J. Woodwark), Oxford University Press, 1989, pp. 1–28.
- (R.42) Effective Tests for Cyclotomic Polynomials. (with R.J. Bradford). Proc. ISSAC 88 (Springer Lecture Notes in Computer Science 358, Springer-Verlag, Berlin-Heidelberg-New York-Tokyo, 1989) pp. 244–251.
- (R.43) Robot Motion Planning. *Geometric Reasoning* (ed. J. Woodwark), Oxford University Press, 1989, pp. 43–52.

- (R.44) Applications of Computer Algebra in Solid Modelling (with A. Bowyer, P.S. Milne, J.A. Padget and A.F. Wallis). Proc. EUROCAL '87 (Springer Lecture Notes in Computer Science 378, ed. J.H. Davenport, Springer, 1989) pp. 244–245.
- (R.45) Polynomial Factorisation: an Exploration of Lenstra's Algorithm (with J.A. Abbott). Proc. EUROCAL '87 (Springer Lecture Notes in Computer Science 378, ed. J.H. Davenport, Springer, 1989) pp. 391–402.
- (R.46) Manipulation of Expressions (with H.-C. Fischer). In: *Improving Floating-Point Programming* (ed. P.J.L. Wallis), Wiley, 1990, pp. 149–167.
- (R.47) Current Problems in Computer Algebra System Design. Proc. DISCO '90 (Springer Lecture Notes in Computer Science Vol. 429, ed. A. Miola) pp. 1–9.
- (R.48) Scratchpad's View of Algebra I: Basic Commutative Algebra (with B.M. Trager). Proc. DISCO '90 (Springer Lecture Notes in Computer Science Vol. 429, ed. A. Miola) pp. 40–54.
- (R.49) On Finding the Largest Root of a Polynomial (with M. Mignotte). *Modélisation Mathématique et Analyse Numérique* 24(1990) pp. 693–696.
- (R.50) Symbolic Computation. *Software Engineer's Reference Book*, Butterworth-Heinemann, 1991, pp. 62-1 – 62-9.
- (R.51) Polynomials whose Powers are Sparse (with D. Coppersmith). *Acta Arithmetica* 58(1991) pp. 79–87. Zbl 729.11015. MR 92h:12001.
- (R.52) Scratchpad's View of Algebra II: A Categorical View of Factorization (with P. Gianni and B.M. Trager). Proc. ISSAC 1991 (ACM, New York) pp. 32–38. <http://portal.acm.org/citation.cfm?id=120694.120699>.
- (R.53) Computer Algebra Approaches to Enzyme Kinetics (with J.P. Bennett and M.C. Dewar and D.L. Fisher and M. Grinfeld and H. Sauro). *Algebraic Computing in Control* (ed. G. Jacob & F. Lamnabhi-Lagarrigue), Lecture Notes in Control and Information Sciences 165, Springer-Verlag, 1991, pp. 23–30. Zbl. 785.92014.
- (R.54) Primality Testing Revisited. Proc. ISSAC 92 (ed. P.S. Wang). ACM, New York, 1992, pp. 123–129. ISBN 0-89791-489-9. <http://doi.acm.org/10.1145/143242.143290>.
- (R.55) Symbolic and Numeric Computation: The Example of IRENA (with M.C. Dewar and M.G. Richardson). *Symbolic and Numerical Computation for Artificial Intelligence* (ed. Donald, B.R., Kapur, D. & Mundy, J.L.), Academic Press, 1992, pp. 347–362. ISBN 0-12-220535-9.
- (R.56) Computers and Number Theory. Chapter VIII of “The Higher Arithmetic”, by H. Davenport, edited J.H. Davenport, C.U.P., 1992. Zbl. 751.11001. Italian trans. “Arithmetica Superiore: Un'introduzione alla teoria dei numeri”, Zanichelli, Bologna, 1994. ISBN 0-521-42227-2.
- (R.57) Voronoi Diagrams of Set-Theoretic Solid Models (with David Lavender, Adrian Bowyer, Andrew Wallis and John Woodwark). *IEEE Computer Graphics & Applications* 12(1992) 5, pp. 69–77. ISSN 0272-1716.
- (R.58) The Rôle of Intelligence in Computer Algebra. Proc. IMA Conf. “Artificial Intelligence in Mathematics” (ed. J.H. Johnson, S. McKee & A. Vella), IMA Conference Series 51, Oxford University Press, 1994, pp. 159–172. ISBN 0-19-853686-0.
- (R.59) An overview of Computer Algebra (with Cohen, A.M. & Heck, A.J.P.). *Computer Algebra in Industry* (ed. A.M. Cohen), Wiley, 1993, pp. 1–52. ISBN 0-471-93829-7.
- (R.60) The “Unknown” in Computer Algebra (with C.R. Faure). *Programmirovanië* (Jan. 1994) pp. 4–10. *Programming and Computer Software* 20(1994) 1 pp. 1-5. ISSN 0132-3474.
- (R.61) Using Computer Algebra to Choose and Apply Numerical Routines (with B.J. Dupée). *AXIS* 2(1995) 3, pp. 31–41.
- (R.62) An Expert System for Numerical Analysis (with B.J. Dupée). Proc. Polymodel 16: Applications of Artificial Intelligence, (Moscardi, A.O., and Smith, P., eds.) pp. 59–74. ISBN 1-873757-07-7.
- (R.63) Computer Science and Mathematics. In “Computing Tomorrow: Future research directions in computer science” (ed. I.C. Wand & R. Milner), C.U.P., 1996, pp. 66–87. ISBN 0-521-46085-9.
- (R.64) Galois Groups and the Simplification of Polynomials. *Programmirovanië* 1997 1 pp. 43–58. English translation Program. *Comput Software* 23(1997) pp. 31–44. MR 98m:12002. ISSN 0132-3474. University of Bath Electronic Technical Report 92-2*.

* <http://www.bath.ac.uk/~masjhd/Programmirovanië.dvi>

- (R.65) An Intelligent Interface to Numerical Routines (with B.J. Dupée). Proc. DISCO '96, Springer Lecture Notes in Computer Science 1128 (ed. J. Calmet & J. Limoncelli), pp. 252–262.
- (R.66) An Automatic Symbolic-Number Taylor Series ODE Solver (with B.J. Dupée). Computer Algebra in Scientific Computing (Proc. CASC '99). ed. V.G. Ganzha, E.W. Mayr & E.V. Vorozhtsov, Springer, 1999, pp. 37–50. ISBN 3-540-66047-X.
- (R.67) An Exact Real Algebraic Arithmetic with Equality Determination (with N. Hur). Proc. ISSAC 2000 (ed. C. Traverso), pp. 169–174. MR 2002c:11171.
- (R.68) Abstract Data Types in Computer Algebra. Proc. MFCS 2000 (ed. M. Nielsen, B. Rován), Springer Lecture Notes in Computer Science 1893, Springer-Verlag, 2000, pp. 21–35. ISBN 3-540-67901-4
- (R.69) Fast recognition of alternating and symmetric Galois groups (with G.C. Smith). *Journal of Pure and Applied Algebra* **153** (2000) pp. 17–25. MR 2001j:20113
- (R.70) Reasoning about the elementary functions of complex analysis (with R.M. Corless, G. Litt, D.J. Jeffrey & S.M. Watt). Artificial Intelligence and Symbolic Computation (ed. John A. Campbell & Eugenio Roanes-Lozano), Springer Lecture Notes in Artificial Intelligence Vol. 1930, Springer-Verlag 2001, pp. 115–126. ISBN 3-540-42071-1. http://dx.doi.org/10.1007/3-540-44990-6_9
- (R.71) A Generic Root Operation for Exact Real Arithmetic (with N. Hur). Computability and Complexity in Analysis (ed. J. Blanck, V. Brattka & P. Hertling), Springer Lecture Notes in Computer Science 2064, Springer-Verlag, 2001, pp. 82–87. ISBN 3-540-42197-1.
- (R.72) Reasoning about the elementary functions of complex analysis (with R.J. Bradford, R.M. Corless, D.J. Jeffrey & S.M. Watt). *Annals of Mathematics and Artificial Intelligence* **36** (2002) pp. 303–318.
- (R.73) Lattice Attacks on RSA-Encrypted IP and TCP (with P.A. Crouch*). Proc. 8th. IMA Conf. Cryptography and Coding (ed. B. Honary), Springer Lecture Notes in Computer Science 2260, Springer-Verlag, 2001, pp. 329–338. ISBN 3-540-43026-1.
- (R.74) Mathematical Knowledge Representation. <http://www.risc.uni-linz.ac.at/conferences/MKM2001/Proceedings>.
- (R.75) Table Errata — Abramowitz & Stegun. *Math. Comp.* **71** (2002) p. 1801.
- (R.76) Towards Better Simplification of Elementary Functions (with R.J. Bradford). Proc. ISSAC 2002 (ed. T. Mora), ACM Press, New York, 2002, pp. 15–22. ISBN 1-58113-484-3.
- (R.77) The Geometry of \mathbf{C}^n is Important for the Algebra of Elementary Functions. Algebra, Geometry and Software Systems (ed. M. Joswig & N. Takayama), Springer, 2003, pp. 207–224. ISBN 3-540-00256-1.
- (R.78) Equality in Computer Algebra and Beyond. *J. Symbolic Comp.* **34** (2002) pp. 259–270.
- (R.79) MKM: from book to computer. Proc. Mathematical Knowledge Management 2003 (ed A. Asperi, B. Buchberger & J.H. Davenport), Springer Lecture Notes in Computer Science 2594, Springer-Verlag, 2003, pp. 17–29.
- (R.80) Better Simplification of Elementary Functions Through Power Series (with J.C. Beaumont & R.J. Bradford). Proc. ISSAC 2003 (ed. J.R. Sendra), ACM Press, 2003, pp. 30–36.
- (R.81) The geometry of \mathbf{C}^n is important for the algebra of elementary functions. Algebra, geometry, and software systems, Springer, Berlin, 2003, pp. 207–224. MR 2005i:33028 (summary).
- (R.82) Resolving Large Prime(s) Variants for Discrete Logarithm Computation (with A.J. Holt). Proc. 9th IMA Conf. Coding and Cryptography (ed. P.G. Farrell), Springer Lecture Notes in Computer Science 2898, Springer-Verlag, 2003, pp. 207–222. ISBN 3-540-20663-9.
- (R.83) Mathematics on the Semantic Web (with O. Caprotti, M.C. Dewar & J.A. Padget). Semantic Web: Research And Applications, Springer Lecture Notes in Computer Science 3053, Springer-Verlag, 2004, pp. 213–224.
- (R.84) Copyright issues for MKM (with A.A. Adams). Proc. MKM 2004, Springer Lecture Notes in Computer Science 3119, Springer-Verlag, 2004, pp. 1–16
- (R.85) A Poly-algorithmic Approach to Simplifying Elementary Functions (with J.C. Beaumont, R.J. Bradford & N. Phisanbut). Proc. ISSAC 2004 (ed. J. Gutierrez), ACM Press, 2004, pp. 27–34.

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- (R.86) Adherence is Better than Adjacency (with J.C. Beaumont, R.J. Bradford & N. Phisanbut). Proc. ISSAC 2005 (ed. M. Kauers), ACM Press, 2005, pp. 37–44. <http://doi.acm.org/10.1145/1073884.1073892>.
- (R.87) What might “Understand a Function” mean? Towards Mechanized Mathematical Assistants (ed. M. Kauers, M. Kerber, R. Miner & W. Windsteiger), Springer Lecture Notes in Artificial Intelligence 4573, pp. 55–65, 2007.
- (R.88) The Complexity of Quantifier Elimination and Cylindrical Algebraic Decomposition (with Christopher W. Brown) Proc. ISSAC 2007 (ed. Christopher W. Brown) pp. 54–60.
- (R.89) Testing elementary function identities using CAD (with J.C. Beaumont, R.J. Bradford & N. Phisanbut). *AAECC* 18(2007) pp. 513–543.
- (R.90) Algebraic properties of the Lambert W Function from a result of Rosenlicht and of Liouville (with M. Bronstein, R.M. Corless & D.J. Jeffrey). *Integral Transforms and Special Functions* 19(2008) pp. 709–712.
- (R.91) Artificial Intelligence Meets Natural Typography. Proc. AISC/Calculumus/MKM 2008 (ed. S. Autexier *et al.*), Springer Lecture Notes in Artificial Intelligence 5144, Springer-Verlag, pp. 53–60. http://dx.doi.org/10.1007/978-3-540-85110-3_6.
- (R.92) Effective Set Membership in Computer Algebra and Beyond. Extended Abstract: Proc. AISC/Calculumus/MKM 2008 (ed. S. Autexier *et al.*), Springer Lecture Notes in Artificial Intelligence 5144, Springer-Verlag, pp. 266–269. http://dx.doi.org/10.1007/978-3-540-85110-3_22.
- (R.93) Unit Knowledge Management (with J.D. Stratford*). Proc. AISC/Calculumus/MKM 2008 (ed. S. Autexier *et al.*), Springer Lecture Notes in Artificial Intelligence 5144, Springer-Verlag, pp. 382–397. http://dx.doi.org/10.1007/978-3-540-85110-3_33.
- (R.94) The Freedom to Extend OpenMath and its Utility (with P. Libbrecht). *Mathematics in Computer Science* 2(2008/9) pp. 379–398. <http://www.springerlink.com/content/2m0767m633321678>. <http://opus.bath.ac.uk/468>.
- (R.95) A Comparison of Equality in Computer Algebra and Correctness in Mathematical Pedagogy (with R.J. Bradford & C.J. Sangwin). Proc. Calculumus/MKM 2009 (ed. L. Dixon *et al.*), Springer Lecture Notes in Artificial Intelligence 5625, 2009, pp. 75–89.
- (R.96) Unifying Math Ontologies: A tale of two standards (with M. Kohlhase). Proc. Calculumus/MKM 2009 (ed. L. Dixon *et al.*), Springer Lecture Notes in Artificial Intelligence 5625, 2009, pp. 263–278.
- (R.97) Certificate-free Attribute Authentication (with D.D. Khader & L. Chen). Proc. 12th. IMA Conf. Cryptography and Coding (Springer Lecture Notes in Computer Science 5921), 2009, pp. 301–325. <http://www.springerlink.com/content/g711712g02h8v48j>. DOI 10.1007/978-3-642-10868-6.
- (R.98) The Sparsity Challenge (with J. Carette). Proc. SYNASC 2009 (ed. S. Watt *et al.*), IEEE Computer Society, 2010, pp. 3–7. <http://opus.bath.ac.uk/17324/>
- (R.99) The Challenges of Multivalued “Functions”. Proc. AISC/Calculumus/MKM 2010 (ed. S. Autexier *et al.*), Springer Lecture Notes in Artificial Intelligence 6167, Springer-Verlag, Berlin-Heidelberg 2010, pp. 1–12. <http://opus.bath.ac.uk/18792>.
- (R.100) A Comparison of Equality in Computer Algebra and Correctness in Mathematical Pedagogy II (with R.J. Bradford & C.J. Sangwin). *International Journal of Technology in Mathematical Education* 17 (2010) 2 pp. 93–98.
- (R.101) Triangular Decomposition of Semi-Algebraic Systems (with C. Chen, J.P. May, M. Moreno Maza, B. Xia & R. Xiao). Proc. ISSAC 2010 (ed. S.M. Watt), ACM Press, New York, 2010, pp. 187–194.
- (R.102) Computing with Semi-Algebraic Sets Represented by Triangular Decomposition (with C. Chen, M. Moreno Maza, B. Xia & R. Xiao). Proc. ISSAC 2011, ACM Press, New York, 2011, pp. 75–82.
- (R.103) Cryptographic Hash Functions: Recent Design Trends and Security Notions (with S. Al Kuwari & R.J. Bradford). Short Paper Proceedings of 6th China International Conference on Information Security and Cryptology (Inscrypt ’10), Science Press of China, 2010, pp. 133–150. <http://eprint.iacr.org/2011/565>; <http://opus.bath.ac.uk/20815/>.

* Final Year student at Bath 2007–8.

- (R.104) Triangular Decomposition of Semi-Algebraic Systems (with C. Chen, J.P. May, M. Moreno Maza, B. Xia & R. Xiao). To appear in *J. Symbolic Comp.*. <http://www.sciencedirect.com/science/article/pii/S0747717111002070>.
- (R.105) On Kahan’s Rules for Determining Branch Cuts (with F. Chyzak, C. Koutschan & B. Salvy). Proc. SYNASC 2011 (ed. D. Wang et al.), IEEE Computer Society Press, Los Alamitos, CA, 2012, pp. 47-51. ISBN 987-0-7695-4830-8.
- (R.106) Using EVS and ResponseWare to Enhance Student Learning and Learning Experience (with E.H. Cliffe, M. De Vos, A. Hayes & N.R. Parmar). Proc. 11th Annual Conference of the Subject Centre for Information and Computer Sciences, Durham: HE Academy, Subject Centre for ICS, pp. 141-146. <http://opus.bath.ac.uk/18958/>.
- (R.107) Speeding up Cylindrical Algebraic Decomposition by Gröbner Bases (with D.J. Wilson and R.J. Bradford). Proc. CICM 2012 (ed. J. Deuring et al.), Springer Lecture Notes in Artificial Intelligence 7362, Springer, Heidelberg, 2012, pp. 279–293.
- (R.108) Computing with semi-algebraic sets: Relaxation techniques and effective boundaries (with C. Chen, M. Moreno Maza, B. Xia & R. Xiao). *J. Symbolic Comp.* **49** (2013) pp. 3-26.
- (R.109) Program Verification in the presence of complex numbers, functions with branch cuts etc. (with R.J. Bradford, M. England and D.J. Wilson). Proc. SYNASC 2012, IEEE Press, 2013, pp. 83–88. <http://arxiv.org/abs/1212.5417>. <http://opus.bath.ac.uk/31670/>.
- (R.110) Cylindrical algebraic decompositions for Boolean combinations (with R.J. Bradford, M. England, S. McCallum and D.J. Wilson). Proc. ISSAC 2013, ACM, New York, NY, USA, pp. 125–132.
- (R.111) Optimising Problem Formulation for Cylindrical Algebraic Decomposition (with R.J. Bradford, M. England and D.J. Wilson). Proc. CICM 2013 (ed. J. Carette et al.), Springer Lecture Notes in Artificial Intelligence 7961, Springer-Verlag, Berlin, 2013, pp. 19–34.
- (R.112) Understanding Branch Cuts of Expressions (with R.J. Bradford, M. England and D.J. Wilson). Proc. CICM 2013 (ed. J. Carette et al.), Springer Lecture Notes in Artificial Intelligence 7961, Springer-Verlag, Berlin, 2013, pp. 136–151.
- (R.113) The changing relevance of the TLB (with J.R. Jones and R.J. Bradford). In: Proceedings of the 12th International Symposium on Distributed Computing and Applications to Business, Engineering and Science (DCABES) 2013, IEEE Press, pp. 110–114. <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6636429>. (Full version <http://opus.bath.ac.uk/35639/>.)
- (R.114) A “Piano Mover’s” Problem Reformulated (with R.J. Bradford, M. England and D.J. Wilson). Proc. SYNASC 2013, IEEE Press, 2014, pp. 53–60. DOI 10.1.1.109/SYNASC.2013.14.
- (R.115) Cylindrical Algebraic Sub-Decompositions (with R.J. Bradford, M. England and D.J. Wilson). *Mathematics in Computer Science* 8(2014) pp. 263–288.
- (R.116) Applying machine learning to the problem of choosing a heuristic to select the variable ordering for cylindrical algebraic decomposition (with Z. Huang, R.J. Bradford, M. England, D.J. Wilson, L. Paulson and J. Bridge) Proc. CICM 2014 (Springer Lecture Notes in Artificial Intelligence 8543) pp. 92–107.
- (R.117) Problem formulation for truth-table invariant cylindrical algebraic decomposition by incremental triangular decomposition (with M. England, R. Bradford, C. Chen, M. Moreno Maza and D. Wilson). Proc. CICM 2014 (Springer Lecture Notes in Artificial Intelligence 8543) pp. 46–60.
- (R.118) Using the Regular Chains Library to build cylindrical algebraic decompositions by projecting and lifting (with M. England, R.J. Bradford and D.J. Wilson). Proc. ICMS 2014 (Springer Lecture Notes in Computer Science 8592) pp. 458–465. <http://arxiv.org/abs/1405.6090>.
- (R.119) Choosing a variable ordering for truth-table invariant cylindrical algebraic decomposition by incremental triangular decomposition (with M. England, R.J. Bradford and D.J. Wilson). Proc. ICMS 2014 (Springer Lecture Notes in Computer Science 8592) pp. 450–457. <http://arxiv.org/abs/1405.6094>.
- (R.120) Interdisciplinary Teaching of Computing to Mathematics Students: Programming and Discrete Mathematics (with David Wilson, Ivan Graham, Gregory Sankaran, Alastair Spence, Jack Blake & Stef Kynaston). To appear in *MSOR Connections*. <http://journals.heacademy.ac.uk/doi/abs/10.11120/msor.2014.00021> <http://opus.bath.ac.uk/39309/>.
- (R.121) Truth table invariant cylindrical algebraic decomposition by regular chains (with R. Bradford,

- C. Chen, M. England, M. Moreno Maza and D. Wilson). Proc. CASC 2014, Springer Lecture Notes Computer Science in Computer Science 8660, Springer-Verlag, pp. 44-58. <http://opus.bath.ac.uk/38344/>.
- (R.122) Mathematical Massive Open Online Courses (MOOCs): Report of a Panel at the 2014 ICM. Proc. 2014 International Congress of Mathematicians I (ed. S.Y. Jang, Y.R. Kim, D.-W. Lee & I. Yie), Kyung Moon SA, Seoul, Korea, 2014, pp. 743–754. <http://blog.wias-berlin.de/imu-icm-panel-moocs/files/2014/10/MOOCReportv4.pdf>.
- (R.123) Attribute-Based Signatures with User-Controlled Linkability (with El Kaafarani,A., Chen,L., Ghadafi,E.). Cryptology and Network Security 2014, Springer Lecture Notes in Computer Science 8813, pp. 256-269.
- (R.124) What does Mathematical Notation actually mean, and how can computers process it?. *Annales Mathematicae et Informaticae* 44(2015) pp. 47-57. <http://opus.bath.ac.uk/42825/>.
- (R.125) Using the distribution of cells by dimension in a Cylindrical Algebraic Decomposition (with R. Bradford, M. England and D. Wilson). Proc. SYNASC 2014, IEEE Press, 2014, pp. 53–60. <http://arxiv.org/abs/1409.1781>.
- (R.126) Solving Computational Problems in Real Algebra/Geometry. *Annales Mathematicae et Informaticae* 44(2015) pp. 35–46. <http://opus.bath.ac.uk/42826/>.
- (R.127) Improving the use of equational constraints in cylindrical algebraic decomposition (with M. England and R.J. Bradford). Proc. ISSAC 2015 (ed. D. Robertz), ACM, New York, pp. 165–172. <http://arxiv.org/abs/1501.04466>. DOI 10.1145/2755996.2756678: dataset DOI 10.15125/BATH-00071.
- (R.128) Recent Advances in Real Geometric Reasoning (with M. England). Proc. Automated Deduction in Geometry ADG 2014. Springer Lecture Notes in Artificial Intelligence 9201, Springer Heidelberg New York Dordrecht London, 2015, pp. 37-52.
- (R.129) Truth Table Invariant Cylindrical Algebraic Decomposition (with R.J. Bradford, M. England, S. McCallum and D.J. Wilson). *Journal of Symbolic Computation* 76(2016) pp. 1–35. DOI:10.1016/j.jsc.2015.11.002.
- (R.130) Complexity of Integration, Special Values, and Recent Developments. Proc. ICMS 2016, Lecture Notes in Computer Science 9725, Springer, 2016, pp. 485–491.
- (R.131) Need Polynomial Systems be Doubly-exponential? (with M. England). Proc. ICMS 2016, Lecture Notes in Computer Science 9725, Springer, 2016, pp. 157-164.
- (R.132) SC²: Satisfiability Checking meets Symbolic Computation (Project Paper) (with Abraham,E., Becker,B., Bigatti,A., Buchberger,B., Cimatti,A., England,M., Fontaine,P., Forrest,S., Kroening,D., Seiler,W. & Sturm,T.). Proc. CISM 2016, Springer Lecture Notes in Computer Science 9791, Springer, 2016, pp 28–43.
- (R.133) The complexity of cylindrical algebraic decomposition with respect to polynomial degree (with M. England). Proc. CASC 2016, Springer Lecture Notes in Computer Science 9890, Springer, 2016, pp. 172–192.
- (R.134) Innovative Pedagogical Practices in the Craft of Computing (with Hayes,A., Hourizi,R. & Crick,T.). Proc. LaTiCE 2016, IEEE Press, 2016, pp. 115–119.
- (R.135) Using Machine Learning to Decide When to Precondition Cylindrical Algebraic Decomposition with Groebner Bases (with Z. Huang, M. England, and L. Paulson). Proc. SYNASC 2016, IEEE Press, 2016, pp. 45-52. DOI 10.1109/SYNASC.2016.14.
- (R.136) An Analysis of Introductory Programming Courses at UK Universities (with E. Murphy and T. Crick). *The Art, Science, and Engineering of Programming* 1(2017) Issue 2, Article 18. DOI: <https://doi.org/10.22152/programming-journal.org/2017/1/18>
- (R.137) A Generalised Successive Resultants Algorithm (with C. Petit and B. Pring). Proceedings of the 2016 International Workshop on the Arithmetic of Finite Fields 2016, Springer Lecture Notes in Computer Science 10064, Springer, 2017, pp. 105-124.
- (R.138) What Does “Without Loss of Generality” Mean, and How Do We Detect It? *Mathematics in Computer Science* online 25 April 2017. DOI 10.1007/s11786-107-0316-2.
- (R.139) A Case Study on the Parametric Occurrence of Multiple Steady States (with Russell Bradford, Matthew England, Hassan Errami, Vladimir Gerdt, Dima Grigoriev, Charles Hoyt, Marek Košta,

- Ovidiu Radulescu, Thomas Sturm, and Andreas Weber). In Proceedings of ISSAC '17, Kaiserslautern, Germany, July 25-28, 2017, 8 pages. <https://doi.org/10.1145/3087604.3087622>.
- (R.140) SC² challenges: when Satisfiability Checking and Symbolic Computation join forces (with Ábrahám, E., Abbott, J., Becker, B., Bigatti, A.M., Brain, M., Buchberger, B., Cimatti, A., England, M., Fontaine, P., Forrest, S., Ganesh, V., Kroening, D., & Seiler, W.). Proc. ARCADE 2017. 1st International Workshop on Automated Reasoning: Challenges, Applications, Directions, Exemplary Achievements (ed. Giles Regeer and Dmitriy Traytel), EPiC Series in Computing **51**, pp. 6–10, 2017. <https://www.easychair.org/publications/paper/WR2g>.
- (R.141) Fast Matrix Operations in Computer Algebra (with Z. Tonks & G.K. Sankaran) Proc. SYNASC 2017, IEEE Press, 2017, pp. 67-70.
- (R.142) The Potential and Challenges of CAD with Equational Constraints for SC-Square (with M. England). Proc. MACIS 2017: Mathematical Aspects of Computer and Information Sciences, Springer Lecture Notes in Computer Science 10693, Springer, 2017, pp. 280-285. <https://arxiv.org/abs/1711.00312>.
- (R.143) TheoryGuru: A Mathematica Package to Apply Quantifier Elimination Technology to Economics (with C.B. Mulligan & M. England). Proc. Mathematical Software — ICMS 2018 (ed. Davenport, J.H., Kauers, M., Labahn, G. & Urban, J.), Springer Lecture Notes in Computer Science 10931, Springer, Cham, 2018, pp. 369–378. <https://arxiv.org/abs/1806.10925>.
- (R.144) Methodologies of Symbolic Computation. Proc. AISC 2018, J. Fleuriot *et al.* (Eds.): LNAI 11110, pp. 19–33, 2018. https://doi.org/10.1007/978-3-319-99957-9_2.
- (R.145) Machine-Assisted Proofs (ICM 2018 Panel) (with Poonen, B., Maynard, J., Helfgott, H., Huu Tiep, P. & Cruz-Filipe, L.). To appear in Proc. ICM 2018. <http://arxiv.org/abs/1809.08062>.
- (R.146) The Institute of Coding: Addressing the UK Digital Skills Crisis (with Crick, T., Hayes, A. & Hourizi, R.). Proc. 3rd Computing Education Practice Conference, ACM, New York. DOI: 10.1145/3294016.3298736.
- (R.147) Teaching of Computing to Mathematics Students: Programming and Discrete Mathematics (with Betteridge, J., Freitag, M., Heijltjes, W., Kynaston, S., Sankaran, G. & Traustason, G.). Proc. 3rd Computing Education Practice Conference, ACM, New York. <https://doi.org/10.1145/3294016.3294022>.
- (R.148) Cylindrical Algebraic Decomposition with Equational Constraints (with M. England & R.J. Bradford). <http://arxiv.org/abs/1903.08999>. To appear in *J. Symbolic Comp.*
- (R.149) Using Machine Learning to Improve Cylindrical Algebraic Decomposition (with Zongyan Huang, Matthew England, David Wilson, James Bridge and Lawrence Paulson). *Mathematics in Computer Science* **11**(2019) pp. 461–488. <https://doi.org/10.1007/s11786-019-00394-8>.
- (R.150) Identifying the Parametric Occurrence of Multiple Steady States for some Biological Networks. (with Russell Bradford, Matthew England, Hassan Errami, Vladimir Gerdt, Dima Grigoriev, Charles Hoyt, Marek Košta, Ovidiu Radulescu, Thomas Sturm, and Andreas Weber). *Journal of Symbolic Computation* **98**(2019) pp. 84–119.
- (R.151) Improvements to low-qubit quantum resource estimates for quantum search (with Ben Pring). https://www.lebesgue.fr/sites/default/files/proceedings_WCC/WCC_2019_paper_46.pdf.
- (R.152) Intelligent Geometry Tools (with Jacques Fleuriot, Pedro Quaresma, Tomas Recio and Dongming Wang). To appear in Proc. ARCADE 2019. <https://researchportal.bath.ac.uk/en/publications/intelligent-geometry-tools>.

In press

- (R.153) A UK Case Study on Cybersecurity Education and Accreditation (with T. Crick, A. Irons & T. Prickett). Accepted in press Proc. FIE 2019. <https://arxiv.org/abs/1906.09584>.
- (R.154) Symbolic Computation and Satisfiability Checking (with M. England, A. Griggio, T. Sturm & C. Tinelli). To appear in *Journal of Symbolic Computation*, 2019. <https://doi.org/10.1016/j.jsc.2019.07.017>.
- (R.155) UK Computer Science Degree Accreditation: A Post-Shadbolt Review Update (with T. Prickett, T. Crick, A. Irons & P. Hanna). Proc. CEP 2020, ACM, New York, 2020, Article 6, pp. 1–4. <http://nrl.northumbria.ac.uk/41733/>

- (R.156) Cybersecurity Education and Formal Methods (with T. Crick) <https://fmfun.github.io/Papers-2019/Davenport-Crick.pdf>.
- (R.157) Data Without Software Are Just Numbers (with J. Grant and C.M. Jones). To appear in *Data Science Journal*.

In preparation/submission

- (R?.158) Deciding the Consistency of Non-Linear Real Arithmetic Constraints with a Conflict Driven Search Using Cylindrical Algebraic Coverings (with E. Ábrahám, M. England and G. Kremer). Submitted to *Journal of Logical and Algebraic Methods in Programming*.
- (R?.159) Testing for Scientific Software (with other SSI fellows).
- (R?.160) Security in a complex ecosystem: improving the security of payment card processing.
- (R?.161) Formal Methods and CyberSecurity. Submitted to *Proceedings Working Formal Methods Symposium (FROM 2019)*.

Supporting Datasets

- (D.1) *Dataset supporting the paper: Improving the use of equational constraints in cylindrical algebraic decomposition*, England, M., Bradford, R., Davenport, J., 2015. DOI: 10.15125/BATH-00071.
- (D.2) *Dataset supporting the paper: Truth table invariant cylindrical algebraic decomposition*, England, M., Bradford, R., Davenport, J., McCallum, S., Wilson, D., 2015. DOI: 10.15125/BATH-00076.
- (D.3) *Metaphors of Identity: Focus Groups*, Panteli, N., Davenport, J., Marder, B., Nemetz, F., Apr 2015. DOI: 10.15125/BATH-00079.
- (D.4) *Dataset for GW4 “First Programming” project*, Davenport, J., Murphy, E., Crick, T., 2016. DOI: 10.15125/BATH-00246.
- (D.5) *Dataset supporting ‘What Does “Without Loss of Generality” Mean (And How Do We Detect It)’*, February 2017. <http://doi.org/10.5281/zenodo.305441>.
- (D.6) *Dataset supporting ‘Using Machine Learning to Decide When to Precondition Cylindrical Algebraic Decomposition With Groebner Bases’*, Huang,Z., England,M., Davenport,J.H., Paulson,L.C., February 2017. <http://doi.org/10.5281/zenodo.343885>

Unrefereed or lightly refereed:

- (U.1) Anatomy of an Integral. SIGSAM Bulletin, 13 (1979) 4 pp. 16–18.
- (U.2) Symbolic Integration. CAMP Publication 81–13.0. Computer Aided Mathematical Problem Solving, Institut für Mathematik, Johannes Kepler Universität, Linz.
- (U.3) On Natural Languages and Computer Systems (with P. Hazel). *Comm. ACM* 24 (1981) (ACM Forum) p. 405.
- (U.4) Fast REDUCE: the Trade-off between Efficiency and Generality. SIGSAM Bulletin 16 (1982) 1 pp. 8–11.
- (U.5) P-adic Reconstruction of Rational Numbers (with P.S. Wang and M.J.T. Guy). SIGSAM Bulletin 16 (1982) 2 pp. 2–3.
- (U.6) On the Parallel Risch Algorithm (III): Use of Tangents. SIGSAM Bulletin 16 (1982) 3, pp. 3–6. Zbl 538.68025.
- (U.7) What do we want from a High-level Language? SIGSAM Bulletin 16 (1982) 4, pp. 6–9, 23.
- (U.8) Integration in Finite Terms. SIGSAM Bulletin 70, May 1984.
- (U.9) Some Useful Bounds (II). Journées Calcul Formel, Luminy, Marseilles, June 4–8 1985.
- (U.10) A Remark on Factorisation (with J.A. Abbott and R.J. Bradford). SIGSAM Bulletin 19(1985) (2) pp. 31–33, 37.
- (U.11) The LISP/VM Foundations of SCRATCHPAD II. Scratchpad Newsletter, IBM, Yorktown Heights, NY., 1(1985) 1, pp. 4–5.
- (U.12) On “Symbolic Mathematical Computation” (with J.A. Padget and J.P. Fitch). *Comm. ACM* 28(1985) (ACM Forum) pp. 1273–1274.
- (U.13) A “Piano Movers” Problem. SIGSAM Bulletin 20 (1986) 1&2 pp. 15–17.
- (U.14) Quelques erreurs que mes thésards ont trouvées. CALSYF 5 (1986) pp. 69–72.

- (U.15) Survey of Symbolical Applications for Numerical Computation. DIAMOND paper 03/2-7/B01.p, Nov 30th., 1986.
- (U.16) Bernstein Bases and Polynomials over Intervals (with P.S. Milne). DIAMOND paper 03/T2b-2/3/B01.p, Nov 25th., 1987.
- (U.17) The World of Computer Algebra. *New Scientist* 1629 (8 Sept. 1988) pp. 71–72.
- (U.18) Symbolic and Numeric Computation: The IRENA Project (with M.C. Dewar and M.G. Richardson). *Proceedings of the Workshop on Symbolic and Numeric Computation (Helsinki, 1991)* (ed. H. Apiola, M. Laine & E. Valkeila) Research Reports, Computing Centre of Helsinki University, 1991. pp. 1–18
- (U.19) How does one program in Axiom. *Proc. Journées Axiom 1992*, Université Paris VI.
- (U.20) Davenport, J.H., Computer Algebra — past, present and future. *Euromath Bulletin* **2** (1994) 1, pp. 25–44.
- (U.21) Davenport, J.H., Calcul Formel : la France dans le monde. Report for the CNRS (France).
- (U.22) Stephenson, C.J., Davenport, J.H. & Kosinski, P.R., Calendric Programming[‡]. in IBM Research Report RC 20542 *Stacks and Trees and Strings and Bits and Pieces*, 23 September 1996, pp. 35–44.
- (U.23) Generic Root Operation for Exact Real Arithmetic (with N. Hur). *Proc. Computability and Complexity in Analysis 2000*, University College Swansea, Technical Report 272-9/2000 (ed. J. Blanck, V. Brattka, P. Hertling & K. Weihrauch), Fachberiech Informatik, FernUniversität Hagen, pp. 151–156.
- (U.24) On Writing OpenMath Content Dictionaries. *ACM SIGSAM Bulletin* special issue on OpenMath **34**(2000) 2, pp. 12–15.
- (U.25) A Small OpenMath Type System. *ACM SIGSAM Bulletin* special issue on OpenMath **34**(2000) 2, pp. 16–21. <http://portal.acm.org/citation.cfm?id=362014>. <http://staff.bath.ac.uk/masjhd/OpenMath/sts2.pdf>.
- (U.26) According to Abramowitz and Stegun (with R.M. Corless, D.J. Jeffrey & S.M. Watt). *ACM SIGSAM Bulletin* special issue on OpenMath **34**(2000) 2, pp. 58–65.
- (U.27) Multi-valued Computer Algebra (with C. Faure & H. Naciri). INRIA Report RR-4001, September 2000. http://hal.inria.fr/view_by_stamp.php?label=INRIA-RRRT&langue=en&action_todo=view&id=inria-00072643&version=1.
- (U.28) The Current State of OpenMath Content Dictionaries. *Proc. 2001 Internet-Accessible Mathematical Computation*, <http://www.symbolicnet.org/conferences/iamc2001.html>.
- (U.29) Mathematical Knowledge Representation. *Proc. MKM 2001*, <http://www.risc.uni-linz.ac.at/about/conferences/MKM2001/Proceedings/davenport.pdf>.
- (U.30) Units and Dimensions in OpenMath (with W.A. Naylor). <http://www.openmath.org/documents/Units.pdf>.
- (U.31) The difficulties of definite integration. *Proc. Calculemus 2003*. <http://www-calfor.lip6.fr/~rr/Calculemus03/davenport.pdf>.
- (U.32) Description and generation of mathematical web services (with Aird, M.-L., Barbera Medina, W. & Padget, J.A). *Proc. Internet Accessible Mathematical Computation 2004*. <http://www.orcca.on.ca/conferences/iamc2004/abstracts/04006.pdf>.
- (U.33) The Utility of OpenMath. *Calculemus/MKM 2007 Work in Progress* (ed. M. Kauers, M. Kerber, R. Miner & W. Windsteiger), RISC-Linz Report 07-06, 2007, pp. 93–107.
- (U.34) Computer Algebra and the Three ‘E’s: Efficiency, Elegance and Expressiveness (with J.P. Fitch). *Programming Languages for Mechanized Mathematics Workshop* (ed. J. Carette & F. Wiedijk), RISC-Linz Report 07-10, 2007, pp. 1–5.
- (U.35) OpenMath in a (Semantic) Web. *Proc. 3rd Joining Education Mathematics Workshop*. <http://www.jem-thematic.net/node/592>.
- (U.36) The use of an Electronic Voting System to enhance student feedback (with A. Hayes and N.R. Parmar). *Proc. 4th Plymouth e-Learning Conference — Boundary Changes: Redefining Learning Spaces*. <http://opus.bath.ac.uk/12505/>.

[‡] The calendar incidentally proposed here, of 31 leap years in 128, appears to have been invented independently by von Mädler.

- (U.37) User Interface Design for Geometrical Decomposition Algorithms in Maple (with Chen,C., May,J., Moreno Maza,M., Xia,B., Xiao,R. & Xie,Y.). Proc. MathUI '09: <http://www.activemath.org/workshops/MathUI/09/proc/Davenport-et-al-UI-design-geometric-decomposition-MathUI09.pdf>.
- (U.38) Geometry of Branch Cuts (with N. Phisanbut and R.J. Bradford). Poster at ISSAC 2010; *Communications in Computer Algebra* **44** (2010) pp. 132–135.
- (U.39) Computing the real solutions of polynomial systems with the RegularChains library in Maple (with Chen,C., Lemaire,F., Moreno Maza,M., Xia,B., Xiao,R. & Xie,Y.). Software Presentation at ISSAC 2011[‡]. *ACM Communications in Computer Algebra* **45**(2011) 3 pp. 166-168.
- (U.40) Solving semi-algebraic systems with the RegularChains library in Maple (with Chen,C., Lemaire, F., Moreno Maza,M., Phisanbut,N., Xia,B., Xiao,R. & Xie,Y.). Proc. MACIS 2011 and <http://hal.archives-ouvertes.fr/hal-00825013/>. Proceedings of the Fourth International Conference on Mathematical Aspects of Computer Science and Information Sciences (MACIS 2011), Edited by Stefan Raschau, pp. 38–51, 2011.
- (U.41) Small Algorithms for Small Systems. *ACM Communications in Computer Algebra* **46**(2012) 1 pp. 1-9.
- (U.42) A Repository for CAD Examples (with D.J. Wilson and R.J. Bradford). *ACM Communications in Computer Algebra* **46**(2012) 3 pp. 67-69.
- (U.43) Branch Cuts in Maple 17 (with M. England, E. Cheb-Terrab, R.J. Bradford and D.J. Wilson). To appear in *ACM Communications in Computer Algebra*. <http://arxiv.org/abs/1308.6523>. <http://opus.bath.ac.uk/36721/>.
- (U.44) A comparison of three heuristics to choose the variable ordering for cylindrical algebraic decomposition (with Z. Huang, M. England, D. Wilson, and L.C. Paulson). *ACM Communications in Computer Algebra*, 48(3/4), 2015, pp. 121-123. <http://arxiv.org/abs/1405.6082>.
- (U.45) Another Look at Formal Mathematical Properties. <http://ceur-ws.org/Vol-1186/#paper-10>.
- (U.46) Travelling through Facebook; Exploring Affordances through the Lens of Age (with N. Panteli, B. Marder and F. Nemetz). Proc. ECIS 2014, the 22nd European Conference on Information Systems. <http://aisel.aisnet.org/ecis2014/proceedings/track03/1/>.
- (U.47) Innovative pedagogical practices in the craft of Computing (with T. Crick and A. Hayes). HEA Report: <https://www.heacademy.ac.uk/innovative-pedagogical-practices-craft-computing>.
- (U.48) SC²: Satisfiability Checking meets Symbolic Computation (with E. Abraham *et al.*). *ACM Communications in Computer Algebra* 50(2017) pp. 145-147. DOI: 10.1145/3055282.3055285.
- (U.49) OpenMath Standard 2.0 Revision 1 (with P.D.F. Ion). <https://openmath.github.io/standard/om20-2017-07-22/omstd20.pdf>.
- (U.50) The Debate about “Algorithms”. *Mathematics Now* 2017, p. 162. <http://opus.bath.ac.uk/56192/>.
- (U.51) Benchmarking Solvers, SAT-style (with M.N. Brain and A. Griggio). SC-Square 2017 Satisfiability Checking and Symbolic Computation CEUR Workshop 1974, 2017. <http://ceur-ws.org/Vol-1974/RP3.pdf>.
- (U.52) Speaking another language: Agreeing and enforcing principles for global data governance. <http://blogs.bath.ac.uk/iprblog/2018/02/06/speaking-another-language-the-challenge-of-agreeing-and-enforcing-principles-for-global-data-governance/>.
- (U.53) OpenMath and SMT-LIB (with England,M., Sebastiani,R. & Trentin,P.). <http://arxiv.org/abs/1803.01592>.
- (U.54) Regular cylindrical algebraic decomposition (with Locatelli,A.F. & Sankaran,G.K.). <https://arxiv.org/abs/1803.04029>.
- (U.55) Quantifier Elimination for Reasoning in Economics (with Casey B. Mulligan, Russell Bradford, Matthew England, and Zak Tonks). <https://arxiv.org/abs/1804.10037>.
- (U.56) Using Machine Learning to Improve Cylindrical Algebraic Decomposition (with Zongyan Huang, Matthew England, David Wilson & Lawrence C. Paulson). <https://arxiv.org/abs/1804.10520>.

[‡] Winner of Distinguished Software Presentation Award at ISSAC 2011, part of FCRC 2011.

- (U.57) The Institute of Coding: A University-Industry Collaboration to Address the UK Digital Skills Crisis (with R. Hourizi). Proc. SIGCSE '19, ACM, p. 1267. <https://dl.acm.org/citation.cfm?doid=3287324.3293834>.
- (U.58) Foreword (to special issue of Mathematics in Computer Science) (with L. Kovacs & D. Zaharie). *Mathematics in Computer Science* pp. 459-460.
- (U.59) Maintaining the Focus on Cybersecurity in UK Higher Education (with Crick,T., Irons,A., Prickett,T. & Pearce,S.). *ITNOW* Issue 4 **61**(2019) pp. 46-47. <https://doi.org/10.1093/itnow/bwz110>.
- (U.60) On Benefits of Equality Constraints in Lex-Least Invariant CAD (with Nair,A. & Sankaran,G.). SC-Square 2019: Satisfiability Checking and Symbolic Computation, 2019 <http://ceur-ws.org/Vol-2460/paper6.pdf>.
- (U.61) Lazard's CAD exploiting equality constraints (with Nair,A., Sankaran,G. & McCallum,S.). *ACM Comm. Computer Algebra* **53**(2019) pp. 138–141. doi: 10.1145/3377006.3377020.

Also Bath Computer Science Technical Reports 87-02 (with J.A. Abbott and R.J. Bradford), 87-04 (with G.C. Smith), 87-06, 88-12 (with J.P. Bennett & H.M. Sauro: <http://staff.bath.ac.uk/masjhd/WithJPB.pdf>), 89-25 (with B.M. Trager), 90-31 (with B.M. Trager), 92-51 (with B.M. Trager & P. Gianni), 91-52, 92-53, 92-67 (with J.A. Abbott and R.J. Bradford) and 96–2; IMAG (Grenoble) Research Reports 357, 358 (with Y. Robert) and 375; University of Delaware Computer and Information Sciences Research Report 83–4; Kungliga Tekniska Högskolan (Stockholm) Numerisk Analys och Datalogi Report TRITA-NA-8511*; IBM Research Report RC 14897 (with B.M. Trager), 14859 (with D. Coppersmith); A New Algebra System (now at <http://portal.axiom-developer.org/refs/articles/>); Axiom Technical Reports ATR/1 (with B.M. Trager), ATR/2 (with B.M. Trager & P. Gianni), ATR/3 and ATR/4; Dagstuhl Seminar Reports 27 (with B. Buchberger and F. Schwarz) and 43 (with F. Krückeberg, R.E. Moore & S.M. Rump), Rapport interne LITP¹ 96/11 (du 5-03-96); OpenMath Project Deliverables 1.2.7 (with S. Buswell, D.P. Carlisle, M.C. Dewar, N. Hur & W.A.Naylor), 1.3.4b, 1.4.5, 1.4.6 (with R.M. Corless, D.J. Jeffrey & S.M. Watt), 1.4.7 (with W.A. Naylor) and 1.4.8; OpenMath Thematic Network Deliverable D02 (with S. Buswell, D.P. Carlisle & M.C. Dewar) “OpenMath — guidelines for tool developers” <http://www.openmath.org/projects/thematic/tools-2.pdf>; MONET Project Deliverable D7; MKM Thematic Network Deliverable D1.1.

Research Student etc. Papers (other than joint with J.H. Davenport)

- (S.1) Najid-Zejli,H., Computation in Radical Extensions. Proc. EUROSAM 84 (Springer Lecture Notes in Computer Science 174, Springer-Verlag, Berlin-Heidelberg-New York-Tokyo, 1984) pp. 115–122.
- (S.2) Najid-Zejli,H., Calcul dans les extensions de corps. CALSYF 3 (1982/3) pp. 181–197.
- (S.3) Abbott,J.A., Integration: Solving the Risch differential equation. Proc. EUROCAL 87 (Springer Lecture Notes in Computer Science 378, Springer-Verlag, Berlin-Heidelberg-etc., 1989), pp. 465–467.
- (S.4) Abbott,J.A., Recovery of Algebraic Numbers from their p -adic Approximations. Proc. ISSAC '89 (ed. G.H. Gonnet), ACM, New York, 1989, pp. 112–120.
- (S.5) Abbott,J.A., Some Ideas about Fault-tolerant Chinese Remaindering. Proceedings AAECC 8 (Springer Lecture Notes in Computer Science 508) pp. 155-163.
- (S.6) Bradford,R.J., Hermite normal forms for integer matrices. Proc. EUROCAL 87 (Springer Lecture Notes in Computer Science 378, Springer-Verlag, Berlin-Heidelberg-etc., 1989), pp. 315–316.
- (S.7) Bradford,R.J., Hearn,A.C., Padget,J.A. & Schrufer,E., Enlarging the REDUCE Domain of Computation. Proc. SYMSAC 86 (ACM, New York, 1986) pp. 100–106.
- (S.8) Dewar,M.C., IRENA — An Integrated Symbolic and Numeric Computation Environment. Proc. ISSAC '89 (ACM, New York, 1989) pp. 171–179.
- (S.9) Dewar,M.C., Manipulating Fortran Code in AXIOM and the AXIOM-NAG Link. Proceedings of the Workshop on Symbolic and Numeric Computation (Helsinki, 1993) Research Report B10, Rolf Nevanlinna Institute, Helsinki 1994, pp. 1–12. ISBN 952-9528-27-2.

* Reprinted as Bath Report 88-10: <http://staff.bath.ac.uk/masjhd/TRITA.pdf>. This paper introduced what is now known as the Davenport–Mahler–Mignotte bound. Google Scholar reports 91 citations.

¹ Laboratoire d'Informatique Théorique de Paris (VI).

- (S.10) Dewar, M.C., Symbolic Numeric Interfaces. In Computer Algebra in Science and Engineering (Fleischer, J., Grabmeier, J., Hehl, F.W. & Küchlin, W., ed.) World Scientific, 1995, pp. 16–23. ISBN 981-02-2319-6
- (S.11) Dewar, M.C. & Richardson, M.G., Reconciling Symbolic and Numeric Computation in a Practical Setting. Proc. DISCO '90 (Springer Lecture Notes in Computer Science Vol. 429, ed. A. Miola) 195–204.
- (S.12) Broughan, K.A., Dewar, M.C., Keady, G., Robb, T. & Richardson, M.G., Some symbolic computing links to the NAG numeric library. SIGSAM Bulletin, July 1991.
- (S.13) Milne, P.S., On the Solutions of a Set of Polynomial Equations. Symbolic and Numerical Computation for Artificial Intelligence (ed. Donald, B.R., Kapur, D. & Mundy, J.L.), Academic Press, 1992, pp. 89–101. ISBN 0-12-220535-9.†
- (S.14) Dewar, M.C., Using Computer Algebra to Select Numerical Algorithms. Proc. ISSAC 1992 (ed P.S. Wang) pp. 1–8.. ISBN 0-89791-489-9.
- (S.15) Dewar, M.C., Integrating symbolic and numeric computation. Computer Algebra in Industry (ed. A.M. Cohen), Wiley, 1993, pp. 221–232. ISBN 0-471-93829-7.
- (S.16) Richardson, M.G., The IRENA User Interface to the NAG Fortran Library. Computer Algebra in Industry (ed. A.M. Cohen), Wiley, 1993, pp. 233–243. ISBN 0-471-93829-7.
- (S.17) Dewar, M.C., Schnittstellen und Standardisierung. In Computeralgebra in Deutschland: Bestandsaufnahme, Möglichkeiten, Perspektiven, ed. V. Weispfenning & J. Grabmeier, Fachgruppe Computeralgebra der GI, DMV, GAMM, Passau, 1993, pp. 94–99.
- (S.18) Keady, G. & Richardson, M.G., An application of IRENA to systems of nonlinear equations arising in equilibrium flows in networks. Proc. ISSAC 1993 (ed. M. Bronstein, ACM, 1993) pp. 311–320. ISBN 0-89791-604-2.
- (S.19) Keady, G. & Nolan, G., Production of Argument SubPrograms in the AXIOM-NAG Link: examples involving non-linear systems. Proceedings of the Workshop on Symbolic and Numeric Computation (Helsinki, 1993) Research Report B10, Rolf Nevanlinna Institute, Helsinki 1994, pp. 13–31. ISBN 952-9528-27-2.
- (S.20) Dupée, B.J., Object Oriented Methods using Fortran 90. Fortran Forum **13** (1994) 1, pp. 21–30. ISSN 0735-3731.
- (S.21) Meikle, I.D. & Naylor, W.A., A Physical Application of Computer Algebra. Proc. “Application of Advanced IT”, Edinburgh, 1994.
- (S.22) Dupée, B.J., Measuring the Likely Effectiveness of Strategies. Proc. Artificial Intelligence and Symbolic Computation 3, Springer Lecture Notes in Computer Science 1138 (ed. J. Calmet, J.A. Campbell & J. Pfalzgraf), pp. 191–196.
- (S.23) Howgrave-Graham, N.A., Finding Small Roots of Univariate Modular Equations Revisited. Cryptography and Coding (Ed. M. Darnell), Springer Lecture Notes in Computer Science 1355, 1997, pp. 131–142.
- (S.24) Dupée, B.J., Using a Computer Algebra System to Provide a Better Interface to Numerical Routines. Proc. 6th. Rhine Workshop on Computer Algebra (ed. J. Calmet), Sankt Augustin, 1998.
- (S.25) Howgrave-Graham, N.A. & Smart, N.P., Lattice attacks on digital signature schemes. HP Labs Technical Report HPL-1999-90.
- (S.26) Boneh, D., Durfee, G. & Howgrave-Graham, N.A., Factoring $N = p^r q$ for large r . Proc. Crypto 1999 (Springer Lecture Notes in Computer Science 1666) Springer-Verlag, 1999, pp. 326–337.
- (S.27) Howgrave-Graham, N.A. & Siefert, J.-P., Extending Wiener’s attack in the presence of many decrypting exponents. Proc. Secure Networking — CQRE '99 (Springer Lecture Notes in Computer Science 1740) Springer-Verlag, 1999, pp. 153–164.
- (S.28) Galway, W.F., Dissecting a sieve to cut its need for space. Algorithmic number theory (Leiden, 2000) Lecture Notes in Comput. Sci., vol. 1838, Springer, Berlin, 2000, pp. 297–312. MR 1850613, https://doi.org/10.1007/10722028_17.
- (S.29) Alvarez Sobreviela, L.* , A Reduce-based OpenMath \leftrightarrow MathML Translator. *ACM SIGSAM Bulletin*

† This introduced the “Milne volume function”, and, as of February 2019, had 55 citations in Google Scholar.

* Work coming out of his final year project under JHD.

- letin* special issue on OpenMath **34**(2000) 2, pp. 31–32.
- (S.30) Howgrave-Graham, N.A. & Smart, N.P., Lattice attacks on digital signature schemes. *Designs, Codes and Cryptography* **23** (2001) pp. 283–290.
- (S.31) Granger, R., Holt, A.J., Page, D., Smart, N.P. & Vercauteren, F., Function Field Sieve in Characteristic Three. Proc. ANTS-VI (ed. D Buell), Springer Lecture Notes in Computer Science 3076, 2004, pp. 223–234.
- (S.32) Aird, M.-L.‡, Barbera Medina, W.‡ & Padget, J.A, MONET: service discovery and composition for mathematical problems. Proc. CCGrid 2003, IEEE Press, 2003, pp. 678–685.
- (S.33) Aird, M.-L.‡, Barbera Medina, W.‡ & Padget, J.A, Brokerage for Mathematical Services in MONET. Collected papers from Web Services and Agent Based Systems Workshop (AAMAS’03) (ed L. Cavedon), Kluwer, 2004.
- (S.34) Beaumont, J. C.‡, Bradford, R. & Phisanbut, N., Practical Simplification of Elementary Functions using CAD. Proceedings of the A3L 2005 Dolzmann, Seidl, Sturm (Eds.) Algorithmic Algebra and Logic. BOD Norderstedt, Germany.
- (S.35) Li, H.* , The Analysis and Implementation of the AKS Algorithm and Its Improvement Algorithms. basics.sjtu.edu.cn/~liguoqiang/teaching/algo11/materials/AKS.pdf, May 2007.
- (S.36) Wilson, D.J., Real Geometry and Connectness via Triangular Description: CAD Example Bank. <http://opus.bath.ac.uk/29503>, 2012.
- (S.37) England, M.‡, An Implementation of CAD in Maple Utilising McCallum Projection. <http://opus.bath.ac.uk/33180>, 2013.
- (S.38) Wilson, D.J. & England, M.‡, Layered cylindrical algebraic decomposition. Technical Report CSBU-2013-05 Department of Computer Science University of Bath. <http://opus.bath.ac.uk/36712/>.
- (S.39) England, M.‡, Formulating problems for real algebraic geometry. Proceedings XIV Encuentros de Álgebra Computacional y Aplicaciones, pp. 107–110, 2014.
- (S.40) El. Kaafarani, A., Ghadafi, E., & Khader, D., Decentralized Traceable Attribute-Based Signatures. Topics in Cryptology — CT-RSA 2014, Springer International Publishing, pp. 327–348.
- (S.41) Kaparelos, S., Extending Cachegrind : L2 cache inclusion and TLB measuring. <http://opus.bath.ac.uk/39762/> and presentation at FOSDEM 2015 https://fosdem.org/2015/schedule/event/valgrind_extending_cachegrind/attachments/slides/737/export/events/attachments/valgrind_extending_cachegrind/slides/737/valgrind_extending_cachegrind.odp
- (S.42) England, M.‡ & Wilson, D.J., An Implementation of Sub-CAD in Maple. Technical Report CSBU-2015-01 Department of Computer Science University of Bath. <http://opus.bath.ac.uk/43911/>.
- (S.43) Tonks, Z., On Fast Matrix Inversion via Fast Matrix Multiplication. <https://arxiv.org/abs/1901.00904>.
- (S.44) Pring, B.I., Exploiting preprocessing for quantum search to break parameters for MQ cryptosystems. http://waifi.org/documents/AcceptedPapers2018/S5-WAIFI_2018_paper_23.pdf.

‡ Research Officer.