

# Ronald F. Boisvert

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**More:** URL: Website<sup>1</sup>. Google Scholar:Google Scholar<sup>2</sup>

## Education

- Ph.D. (Computer Science), Purdue University, West Lafayette, IN, 1979.
- M.S. (Computer Science), Purdue University, West Lafayette, IN, 1977.
- M.S. (Applied Science), The College of William and Mary, Williamsburg, VA, 1975.
- B.S. (Mathematics) *summa cum laude*, Keene State College, Keene, NH, 1973.

## Professional Experience

- Information Technology Laboratory (formerly Computing and Applied Mathematics Laboratory), National Institute of Standards and Technology (NIST, formerly the National Bureau of Standards, NBS), Gaithersburg, MD : *Acting ITL Associate Director for Program Implementation*, 2013–; *Chief*, Applied and Computational Mathematics Division (formerly Mathematical and Computational Sciences Division), 1998–; *Acting Leader*, Computing and Communications Theory Group, 1998–; *Leader*, Mathematical Software Group, 1992–1998; *Computer scientist*, 1979–1992.
- Department of Computer Sciences, Purdue University, West Lafayette, IN : *Research assistant*, 1976–1979; *Teaching assistant*, 1975–1976.
- Institute for Computer Applications in Science and Engineering (ICASE), NASA Langley Research Center, Hampton, VA : *Scientific programmer*, 1974–1975.
- Computer Center, The College of William and Mary, Williamsburg, VA : *Programmer*, 1973–1974.

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<sup>1</sup><https://www.nist.gov/people/ronald-f-boisvert>

<sup>2</sup><https://scholar.google.com/citations?user=ct11jBAAAAAJ>

## Research Interests

- Mathematical software, problem-solving environments
- Numerical analysis, computational science
- Network services in support of computational science
- Numerical solution of partial differential equations

## Professional Service

- ACM Publications Board, Co-Chair 2005–2013, Member 1997–2017.
- *ACM Transactions on Mathematical Software*, Editor-in-Chief 1993–2005, Associate editor 1987–92, 2005–.
- International Federation for Information Processing (IFIP) Working Group on Numerical Software (WG2.5), Chair 2000–2012. Member 1996–.
- Area Editor (Numerical Analysis, Mathematical Software, and Computational Engineering, Finance, and Science), Computing Research Repository ([www.arXiv.org](http://www.arXiv.org)), 1998–2015.
- Numerics Working Group, Java Grande Forum, Co-chair 1998–2004.
- Conferences
  - Member, Program Committee, International Workshop on Data Intensive Scientific Discovery, Shanghai, China (2013)
  - Chair, Organizing Committee, IFIP Working Group 2.5 Working Conference on Uncertainty Quantification in Scientific Computing, Boulder, CO (2011)
  - Member, Organizing Committee, From Quantum Information and Complexity to Post Quantum Information Security, Joint Quantum Institute Workshop, University of Maryland (2010)
  - Member, Organizing Committee, IFIP Working Group 2.5 Working Conference on Grid-based Problem-Solving Environments: Implications for Development and Deployment of Numerical Software, Prescott, Arizona (2006)
  - Member, Program Committee, ACM International Symposium on Symbolic Algebraic Computation, Beijing (2005)
  - Member, Program Committee, Symposium on Scientific Computing and Mathematical Software in Emerging Science and Technology, Hong Kong (2005)
  - Member, Organizer, Workshop on the Changing Face of Mathematical Software, Washington, DC (2004)
  - Member, Organizing Committee, National Nanotechnology Initiative Grand Challenge Workshop on Metrology and Instrumentation for Nanotechnology, Gaithersburg, MD, (2004)
  - Member, Scientific Committee, Workshop on Numerical and Symbolic Scientific Computing, Strobl, Austria (2003)

- Member, Program Committee, Conjugate Gradient 50th Anniversary Conference, Zurich, Switzerland (2002)
- Guest Editor, Special Issue of *Mathematics and Computers in Simulation*: 1999 International Symposium on Computational Sciences, in Honor of John R. Rice (2000)
- Member, Program Committee, ACM Java Grande Conference (1999, 2001, 2002)
- Member, Program Committee for the Second International Conference on Expert Systems for Numerical Computing (1990)
- Minisymposia
  - Co-Organizer (with Andrew Dienstfrey), Minisymposium on Uncertainty Quantification and Reproducibility, International Congress on Industrial and Applied Mathematics, Valencia, Spain (2019)
  - Co-Organizer (with Brian Ford), Minisymposium on Recent Advances in Software Tools for Scientific Computing, International Congress on Industrial and Applied Mathematics, Zurich, Switzerland (2007)
  - Co-Organizer (with Anne Trefethen), Minisymposium on Java for Numerical Computing, International Congress on Industrial and Applied Mathematics, Edinburgh, Scotland (1999)
- Other Professional Service
  - Member, ACM Digital Library Committee (2018–)
  - Member, External Advisory Board, Department of Computer Science, George Washington University (2008–2017)
  - Member, Committee on Mathematics, Modeling, Communications, Networks and Information Sciences, Army Basic Research Review (2007)
  - Member, Selection Committee, ACM Outstanding Contribution to ACM Award (2004–2008) Committee Chair (2007)
  - Member, ACM Electronic Services Working Group (1996–97)
  - Technical Advisory Committee for the National HPCC Software Exchange (1996–98)
  - Member, Steering Committee for the HPCC Software Exchange Working Group (1992–93)
  - Member, Advisory Committee for the National Exemplary Parallel Code Repository (1991)
  - Member, Oversight Committee for the New Technologies/Computational Science and Engineering Programs of the NSF Division of Advanced Scientific Computing (1988)
  - Member, Visiting Committee, NSF Coordinated Experimental Research program (1987, 1989)
- Proposal reviewer for the National Science Foundation, the Department of Energy, the National Aeronautics and Space Administration, NIST Advanced Technology Program, and the NIST Small Business Innovative Research (SBIR) program.
- Referee for *ACM Transactions on Mathematical Software*, *Chemical Engineering Communications*, *Communications of the ACM*, *Computing*, *IEEE/AIP Computing in Science and*

*Engineering, IEEE Transactions on Computers, Journal of Computational and Applied Mathematics, Journal of Computational Physics, Journal of Parallel and Distributed Computing, Journal of Sound and Vibration, Numerical Methods for Partial Differential Equations, SIAM Journal on Numerical Analysis, SIAM Journal on Scientific Computing.*

- Member of the Association for Computing Machinery (ACM), Society for Industrial and Applied Mathematics (SIAM), IEEE Computer Society, the American Mathematical Society (AMS), American Physical Society (APS), Sigma Xi, and the American Association for the Advancement of Science (AAAS).

## Honors

- Fellow, Association for Computing Machinery, 2019.
- Fellow, American Association for the Advancement of Science, 2016.
- Fellow, Washington Academy of Science, 2014.
- Annual Award in Mathematics and Computer Science, Washington Academy of Science, 2014.
- Outstanding Alumni, Department of Computer Science, Purdue University, 2012.
- Gold Medal for Exemplary Federal Service, U.S. Department of Commerce, 2011. (Group award “For the development of the NIST Digital Library of Mathematical Functions, an unprecedented reference on the special functions of applied mathematics”)
- Government Computer News Award for Government IT Achievement (Group award for the Digital Library of Mathematical Functions), 2011.
- Equal Employment Opportunity / Diversity Award, National Institute of Standards and Technology, 2010.
- Silver Core, International Federation for Information Processing, 2007.
- Distinguished Scientist, Association for Computing Machinery, 2006.
- Alumni Achievement Award, Keene State College, Keene, NH, 2002.
- Bronze Medal Award for Superior Federal Service, U.S. Department of Commerce, 2001. (“For leadership in technology transfer introducing significant improvements in the Java programming language and environment for scientific computing applications.”)
- Outstanding Contribution to ACM, Association for Computing Machinery, 1999. (“For his leadership and innovation as Editor-in-Chief of the Transactions on Mathematical Software and his exceptional contributions to the ACM Digital Library project.”)
- Silver Medal Award for Meritorious Federal Service, U.S. Department of Commerce, 1992. (“For outstanding research and technical leadership on information management systems for scientific software.”)

- Bronze Medal Award for Superior Federal Service, U.S. Department of Commerce, 1984. (“For outstanding advances in high quality software for solutions of elliptic partial differential equations at NBS.”)
- Certificate of Recognition for Development of a Technical Innovation (entitled *Coupled Convection Modes at Cylindrical Crystal-Melt Interfaces*): NASA, 1983.
- Elected to the Honor Society of Phi Kappa Phi, Purdue University Chapter, 1978.
- Member of Second Place Team, First ACM International Collegiate Programming Contest, 1977.

## Web Services (Co-)Developed

- The Guide to Available Mathematical Software<sup>3</sup>, 1994.
- ACM Transactions on Mathematical Software<sup>4</sup>, 1994.
- The Matrix Market<sup>5</sup>, 1996.
- Java Numerics<sup>6</sup>, 1998.
- NIST Digital Library of Mathematical Functions<sup>7</sup>, 2010.

## Major Software Packages (Co-)Developed

- ELLPACK<sup>8</sup>. System for elliptic boundary-value problems, 1979, 1985.
- CMLIB<sup>9</sup>. The NIST Core Math Library, 1987.
- HFFT3<sup>10</sup>. High-order accurate fast Poisson solver in 2D and 3D (ACM Algorithm 651), 1987.
- VFFTPACK<sup>11</sup>. Vectorized FFT package, 1989.
- VFNLIB<sup>12</sup>. Vectorized Bessel function evaluation (ACM Algorithm 713), 1993.
- JAMA<sup>13</sup>. A Java matrix package, 1998.

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<sup>3</sup><http://gams.nist.gov/>

<sup>4</sup><http://toms.acm.org/>

<sup>5</sup><http://math.nist.gov/MatrixMarket/>

<sup>6</sup><http://math.nist.gov/javanumerics/>

<sup>7</sup><http://dlmf.nist.gov/>

<sup>8</sup><http://www.cs.purdue.edu/ellpack/>

<sup>9</sup><ftp://ftp.nist.gov/pub/cmlib/>

<sup>10</sup><http://www.netlib.org/toms/651.gz>

<sup>11</sup><http://www.netlib.org/vfftack/>

<sup>12</sup><http://www.netlib.org/vfnlib/>

<sup>13</sup><http://math.nist.gov/javanumerics/jama/>

## Research Grants Awarded

- *Mathematical Foundations for a Networked Scientific Knowledge Base*, Knowledge and Distributed Intelligence Program, NSF 9980036, \$1.3M, 1999-2003. (Joint with D.L. Lozier, F.W.J. Olver, and C. Clark, NIST)
- *Mechanisms for Adaptable and Efficient Information Retrieval Clients and Servers*, DARPA DAAH04-95-1-0595, \$1.3M, 1995-8. (Joint with J.J. Dongarra, Univ. Tenn. at Knoxville, and Eric Grosse, Bell Labs)
- *Improving Public Access to Mathematical Computer Software*, US Department of Commerce Pioneer Fund, \$15K, 1993-4.

## Publications

### Books

1. Andrew M. Dienstfrey and **R. F. Boisvert** eds., *Uncertainty Quantification in Scientific Computing*, IFIP Advances in Information and Communication Technology, Volume 377, Springer, Heidelberg, 2012 (319 pages).
2. Frank W.J. Olver, Daniel W. Lozier, **R. F. Boisvert**, and Charles W. Clark, eds. *NIST Handbook of Mathematical Functions*, Cambridge University Press, 2010 (951 pages).
3. **R. F. Boisvert** and E.N. Houstis, eds. *Computational Science, Mathematics, and Software*, Purdue University Press, 2002 (386 pages).
4. **R. F. Boisvert** and Ping Tak Peter Tang, eds., *The Architecture of Scientific Software*, Kluwer Academic Press, Boston, 2001 (358 pages).
5. **R. F. Boisvert**, ed., *The Quality of Numerical Software, Assessment and Enhancement*, Chapman & Hall, London, 1997 (384 pages).
6. J. R. Rice and **R. F. Boisvert**, *Solving Elliptic Equations Using ELLPACK*, Springer-Verlag, New York, 1985 (479 pages).

## Book Chapters

7. **R. F. Boisvert**, Ronald Cools, and Bo Einarsson, Assessment of Accuracy and Reliability, in *Accuracy and Reliability in Scientific Software* (B. Einarsson, Ed.), SIAM, Philadelphia, 2005, pp. 13–32.
8. **R. F. Boisvert** and R. Pozo, Java, in *Accuracy and Reliability in Scientific Software* (B. Einarsson, Ed.), SIAM, Philadelphia, 2005, pp. 160–169.
9. John R. Rice and **R. F. Boisvert**, Scalable Software Libraries and PSEs, in *Enabling Technologies for Computational Science Frameworks, Middleware and Environments*, (Elias N. Houstis, John R. Rice, Efstratios Gallopoulos, and Randall Bramley, eds.), Kluwer Academic Publishers, Boston, 2000, pp. 33–43.
10. **R. F. Boisvert** and R.A. Sweet, Mathematical software for elliptic boundary value problems, Chapter 9 of *Sources and Development of Mathematical Software* (W. Cowell, ed.), Prentice-Hall, 1984, pp. 200–263.

## In Refereed Journals

11. Anne L. Plant, Chandler A. Becker, Robert J. Hanisch, **R. F. Boisvert**, Antonio M. Possolo, John T. Elliott, How Measurement Science Can Improve Confidence in Research Results, *PLOS Biology*, vol. 16, no. 4, 2018, e2004299. DOI: 10.1371/journal.pbio.2004299
12. Andrew Dienstfrey, Frederick R. Phelan Jr., Stephen Christensen, Alejandro Strachan, Fadil Santosa, and **R. F. Boisvert**, Uncertainty Quantification in Materials Modeling, *The Journal of the Minerals, Metals and Materials Society (JOM)*, vol. 66, no. 7, 2014, pp. 1342–1344. DOI: 10.1007/s11837-014-1049-1
13. Xiao Tang, Lijun Ma, Alan Mink, Anastase Nakassis, Hai Xu, Barry Hershman, Joshua C. Bienfang, David Su, **R. F. Boisvert**, Charles Clark and Carl Williams, Experimental Study of High Speed Polarization-coding Quantum Key Distribution with Sifted-key Rates over Mbit/s, *Optics Express*, vol. 14, no. 6 (March 20), 2006, pp. 2062–2070.
14. **R. F. Boisvert**, Michael Donahue, Daniel Lozier, Robert McMichael, and Bert Rust, Mathematics and Metrology, *NIST Journal of Research*, vol. 106, no. 1, 2001, pp. 293–313.
15. **R. F. Boisvert**, José Moreira, Michael Philippsen, and Roldan Pozo, Java and Numerical Computing, *Computing in Science and Engineering*, vol. 3, no. 2 (March/April), 2001, pp. 18–24. DOI: 10.1109/5992.908997
16. **R. F. Boisvert**, Mathematical Software: Past, Present and Future, *Mathematics and Computers in Simulation*, vol. 54, 2000, pp. 227–241.
17. **R. F. Boisvert**, Jack J. Dongarra , Roldan Pozo, Karin A. Remington and G. W. Stewart, Developing Numerical Libraries in Java, *Concurrency: Practice and Experience*, vol. 10, No. 11–13, 1998, pp. 1117–1129.

18. J.R. Rice and **R. F. Boisvert**, From Scalable Libraries to Problem-Solving Environments, *IEEE Computational Science and Engineering*, Fall, 1996, pp. 44–53.
19. **R. F. Boisvert**, The Architecture of a Virtual Mathematical Software Repository, *Mathematics and Computers in Simulation*, vol. 36, 1994, pp. 269-279.
20. S.R. Coriell, **R. F. Boisvert**, G.B. McFadden, L.N. Brush and J.J. Favier, Morphological Stability of a Binary Alloy during Directional Solidification: Initial Transient, *Journal of Crystal Growth*, vol. 40, 1994, pp. 139–147.
21. **R. F. Boisvert** and Bonita V. Saunders, Portable Vectorized Software for Bessel Function Evaluation, *ACM Transactions on Mathematical Software* 18, No. 4, 1992, pp. 456–469.
22. **R. F. Boisvert**, S. E. Howe, and D. K. Kahaner, The Guide to Available Mathematical Software Problem Classification System, *Communications in Statistics – Simulation and Computation*, vol. 20, no. 4, 1991, pp. 811–842.
23. **R. F. Boisvert**, Algorithms for Special Tridiagonal Systems, *SIAM Journal on Scientific and Statistical Computing*, vol. 12, no. 2, 1991, pp. 423–442.
24. G. B. McFadden, B.T. Murray, and **R. F. Boisvert**, Elimination of Spurious Eigenvalues in the Chebyshev Tau Spectral Method, *Journal of Computational Physics*, vol. 91, No. 1, 1990, pp. 228–239.
25. **R. F. Boisvert**, The Guide to Available Mathematical Software Advisory System, *Mathematics and Computers in Simulation*, vol. 31, nos. 5&6, 1989, pp. 453–464.
26. P. W. Voorhees, G. B. McFadden, **R. F. Boisvert**, and D.I. Meiron, Numerical Simulation of Morphological Development during Ostwald Ripening, *Acta Metallurgica*, vol. 36, no. 1, 1988, pp. 207–222.
27. **R. F. Boisvert**, A Fourth-order Accurate Fourier Method for the Helmholtz Equation in Three Dimensions, *ACM Transactions on Mathematical Software*, vol. 13, no. 3, 1987, pp. 221–234.
28. **R. F. Boisvert**, Algorithm 651: HFFT—High-order Fast-direct Solution of the Helmholtz Equation, *ACM Transactions on Mathematical Software*, vol. 13, no. 3, 1987, pp. 235–249.
29. G. B. McFadden, **R. F. Boisvert**, and S. R. Coriell, Nonplanar Interface Morphologies during Directional Solidification II—Three-dimensional Computations, *Journal of Crystal Growth*, vol. 84, 1987, pp. 371–388.
30. G. B. McFadden, P. W. Voorhees, **R. F. Boisvert**, and D.I. Meiron, A Boundary Integral Method for the Simulation of Two-dimensional Particle Coarsening, *Journal of Scientific Computing* vol. 1, no. 2, 1986, pp. 117–144.

31. **R. F. Boisvert**, S. E. Howe, and D. K. Kahaner, GAMS: A Framework for the Management of Scientific Software, *ACM Transactions on Mathematical Software* vol. 11, no. 4, 1985, pp. 313–355.
32. G. B. McFadden, S. R. Coriell, and **R. F. Boisvert**, On Double-diffusive Convection with Sidewalls, *Physics of Fluids* vol. 28, no. 9, 1985, pp. 2716–2722.
33. Q.T. Fang, M. E. Glicksman, S. R. Coriell, G. B. McFadden, and **R. F. Boisvert**, Convective Influence on the Stability of a Cylindrical Solid-liquid Interface, *Journal of Fluid Mechanics* vol. 151, 1985, pp. 121–140.
34. S. R. Coriell, G. B. McFadden, **R. F. Boisvert**, and R.F. Sekerka, Effect of a Forced Couette Flow on Coupled Convective and Morphological Instabilities during Unidirectional Solidification, *Journal of Crystal Growth* vol. 69, no. 1, 1984, pp. 15–22.
35. G. B. McFadden, S. R. Coriell, **R. F. Boisvert**, and M. E. Glicksman, Asymmetric Instabilities in Buoyancy-driven Flow in a Tall Vertical Annulus, *Physics of Fluids* vol. 27, no. 6, 1984, pp. 1359–61.
36. S. R. Coriell, G. B. McFadden, **R. F. Boisvert**, M. E. Glicksman, and Q.T. Fang, Coupled Convective Instabilities at Crystal-melt Interfaces *Journal of Crystal Growth* vol. 66, no. 3, 1984, pp. 514–524.
37. G. B. McFadden, S. R. Coriell, **R. F. Boisvert**, M. E. Glicksman, and Q.T. Fang Morphological Stability in the Presence of Fluid Flow in the Melt, *Metallurgical Transactions 15A* 1984, pp. 2117–2124.
38. S. R. Coriell, **R. F. Boisvert**, J.I. Mickalonis, and M. E. Glicksman, Morphological and Convective Instabilities during Solidification, *Advances in Space Research* vol. 3, no. 5, 1983, pp. 95–101.
39. S. R. Coriell, **R. F. Boisvert**, R.G. Rehm, and R.F. Sekerka, Lateral Solute Segregation during Unidirectional Solidification of a Binary Alloy with a Curved Solid-liquid Interface II: Large Departures from Planarity, *Journal of Crystal Growth* vol. 54, no. 2, 1981, pp. 167–175.
40. **R. F. Boisvert**, Families of High Order Accurate Discretizations of some Elliptic Problems, *SIAM Journal on Scientific and Statistical Computing* vol. 2, no. 3, 1981, pp. 268–284.
41. **R. F. Boisvert**, E.N. Houstis and J. R. Rice, A System for Performance Evaluation of Partial Differential Equations software, *IEEE Transactions on Software Engineering* vol. SE-5, no. 4, 1979, pp. 418–425.

## In Conference Proceedings

42. X. Tang, L. Ma, A. Mink, T. Chang, H. Xu, O. Slattery, A. Nakassis, B. Hershman, D. Su, and **R. F. Boisvert**, High-Speed Quantum Key Distribution System for Optical Fiber Networks in Campus and Metro Areas, in *Quantum Communications and Quantum Imaging VI* (R. E. Meyers, Y. Shih, and K. S. Deacon, eds.), *Proceedings of the SPIE* **7092**, Article 70920I (2008), 15 pages.
43. Xiao Tang, Lijun Ma, Alan Mink, Anastase Nakassis, Hai Xu, Barry Hershman, Joshua Bienfang, David Su, **R. F. Boisvert**, Charles Clark, and Carl Williams, Demonstration of an Active Quantum Key Distribution Network, in *Proceedings of SPIE* **6305**, Article 63050 (August 29, 2006), 6 pages.
44. Alan Mink, Xiao Tang, Lijun Ma, Tassos Nakassis, Barry Hershman, Joshua C. Bienfang, David Su, **R. F. Boisvert**, Charles W. Clark, and Carl J. Williams, High Speed Quantum Key Distribution System Supports One-Time Pad Encryption of Real-Time Video, in *Proceedings of SPIE* **6244**, pp. 62440M-1-62440M-7 (April 2006).
45. Xiao Tang, Lijun Ma, Alan Mink, Tassos Nakassis, Hai Xu, Barry Hershman, Joshua C. Bienfang, David Su, **R. F. Boisvert**, Charles W. Clark, and Carl J. Williams, Quantum Key Distribution System Operating at Sifted-key Rate Over 4 Mbit/s, in *Proceedings of SPIE* **6244**, pp. 62440P-1-62440P-8 (April 2006).
46. Xiao Tang, Lijun Ma, Alan Mink, Anastase Nakassis, Barry Hershman, Joshua Bienfang, **R. F. Boisvert**, Charles Clark and Carl Williams, High Speed Fiber-Based Quantum Key Distribution using Polarization Encoding, in *Proceedings of SPIE*, vol. 5893, Quantum Communications and Quantum Imaging III (Ronald E. Meyers, Yanhua Shih, Editors), 58931A (Aug. 25, 2005).
47. J. C. Bienfang, A. Mink, B. J. Hershman, A. Nakassis, X. Tang, **R. F. Boisvert**, D. H. Su, C. W. Clark, C. J. Williams, Quantum Generated One-time-pad Encryption with 1.25 Gbps Clock Synchronization, in *OFC/NFOEC Technical Digest, Optical Fiber Communication Conference*, Anaheim, CA (March 2005), 3 pages.
48. **R. F. Boisvert**, Mathematical Software: Past, Present and Future, in *Computational Science, Mathematics and Software*, (R. Boisvert and E. Houstis, eds.), Purdue University Press, 2002, pp. 3–26.
49. Michael Philippsen, **R. F. Boisvert**, Valdimir S. Getov, Roldan Pozo, José Moreira, Dennis Gannon, and Geoffrey C. Fox, JavaGrande - High Performance Computing with Java, in *Applied Parallel Computing. New Paradigms for HPC in Industry and Academia* (T. Strevik, F. Manne, R. Moe, A.H. Gebremedhin, eds.), Lecture Notes in Computer Science, vol. 1947, 2000, pp. 20-36.
50. **R. F. Boisvert**, and Bruce Miller, Improving the Interactivity of Software and Data Repositories Using Java, in *Proceedings of the 15th IMACS World Congress on Scientific*

*Computation, Modelling and Applied Mathematics, Volume 4: Artificial Intelligence and Computer Science*, A. Sydow, ed., Wissenschaft & Technik Verlag, Berlin, August 1997, pp. 767-772.

51. **R. F. Boisvert**, R. Pozo, K. Remington, R. Barrett and J. Dongarra, The Matrix Market: a Web Repository for Test Matrix Data, in *The Quality of Numerical Software, Assessment and Enhancement*, (**R. F. Boisvert**, ed.), Chapman & Hall, London, 1997, pp. 125-137.
52. **R. F. Boisvert**, Shirley Browne, Jack Dongarra and Eric Grosse, Digital Software and Data Repositories for Support of Scientific Computing, in *Advances in Digital Libraries*, N. Adam, B.K. Bhargava and M. Halem, eds., Springer-Verlag, NY, 1996, (Lecture Notes in Computer Science, no. 1082), pp. 61-72.
53. **R. F. Boisvert**, A Web Gateway to a Virtual Mathematical Software Repository, *Electronic Proceedings of the Second International World Wide Web Conference*, 1994.
54. **R. F. Boisvert**, Jeanne L. Springmann and Michael L. Strawbridge, A Virtual Software Repository System, *Proceedings of the Thirtieth Semi-Annual Cray User Group Meeting*, Fall 1992, pp. 68-72.
55. **R. F. Boisvert**, Toward an Intelligent System for Mathematical Software Selection, in *Programming Environments for High-Level Scientific Problem Solving*, P.W. Gaffney and E.N. Houstis, eds., North-Holland, Amsterdam, 1992, pp. 79-92.
56. **R. F. Boisvert**, The Guide to Available Mathematical Software Advisory System, in *Intelligent Mathematical Software Systems*, E. Houstis, J. Rice, and R. Vichnevetsky, eds., North-Holland, Amsterdam, 1990, pp. 167-178.
57. **R. F. Boisvert**, Languages and Software Parts for Elliptic Boundary-value Problems, in *Role of Language in Problem Solving II* (J.C. Boudreaux, B.W. Hamill, and R. Jernigan, eds.), North-Holland, Amsterdam, 1987, pp. 411-431.
58. **R. F. Boisvert**, A Fourth Order Accurate Fast Direct Method for the Helmholtz Equation, in *Elliptic Problem Solvers II* (G. Birkhoff and A. Schoenstadt, eds.), Academic Press, 1984, pp. 35-44.
59. M. E. Glicksman, S. R. Coriell, G. B. McFadden, and **R. F. Boisvert**, Convectively Induced Crystal-melt Instabilities—Influence of Gravity and Rotation, in *Transport Phenomena in Materials Processing* (M.M. Chen, J. Mazumder, and C.L. Tucker III, eds.), American Society of Mechanical Engineers, New York, 1983, pp. 11-13.
60. **R. F. Boisvert** and R.A. Sweet, A Survey of Mathematical Software for Elliptic Boundary Value Problems, *Proceedings of the 10th IMACS World Congress on System Simulation and Scientific Computation*, vol. 1, IMACS, New Brunswick, NJ, 1982, pp. 449-451.

61. **R. F. Boisvert**, High Order Compact Difference Formulas for Elliptic Problems with Mixed Boundary Conditions, in *Advances in Computer Methods for Partial Differential Equations—IV* (R. Vichnevetsky and R.S. Stepleman, eds.), IMACS, New Brunswick, NJ, 1981, pp. 193-199.
62. **R. F. Boisvert**, Attainable Accuracy of Compact Discretizations of the Poisson Equation, in *Elliptic Problem Solvers* (M. Schultz, ed.), Academic Press, 1981, pp. 219–223.
63. **R. F. Boisvert**, High Order Discretizations of the Helmholtz Problem which Admit Iterative Solution Techniques, in *Advances in Computer Methods for Partial Differential Equations—III* (R. Vichnevetsky and R.S. Stepleman, eds.), IMACS, New Brunswick, NJ, 1979, pp. 1–7.
64. W.G. Poole and **R. F. Boisvert**, An Interactive Graphics Package for the Automatic Node Renumbering of Finite Element Matrices (with W.G. Poole), in *Proceedings of the Conference on Applications of Computer Graphics in Engineering*, National Aeronautics and Space Administration, SP-390, 1975.

#### Other

65. **R. F. Boisvert**, Incentivizing Reproducibility, *Communications of the ACM*, vol. 59, no. 10, October 2016, p. 5. DOI:10.1145/2994031
66. **R. F. Boisvert** and Jack Davidson, Positioning ACM for an Open Access Future, *Communications of the ACM*, vol. 56, no. 2, February 2013, p. 5. DOI: 10.1145/2408776.2408777
67. **R. F. Boisvert** and Jack Davidson, ACM’s Copyright Policy, *Communications of the ACM*, vol. 54, no. 10, October 2011, pp. 5-6.
68. **R. F. Boisvert**, Charles W. Clark, Daniel Lozier, and Frank Olver, A Special Functions Handbook for the Digital Age<sup>14</sup>, *Notices of the American Mathematical Society*, vol. 58, no. 7, August 2011, pp. 905–911.
69. **R. F. Boisvert** and Holly Rushmeier, ACM Publications: Access and Sustainability, *Communications of the ACM*, vol. 51, no. 12, December 2008, p. 5.
70. **R. F. Boisvert** Mary Jane Irwin, and Holly Rushmeier, Evolving the ACM Journal Distribution Program, *Communications of the ACM*, vol. 50, no. 9, September 2007 , pp. 19–20.
71. **R. F. Boisvert** and Mary Jane Irwin, Plagiarism on the Rise, *Communications of the ACM*, vol. 49, no. 6, June 2006 , pp. 23–24.

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<sup>14</sup><https://www.ams.org/notices/201107/rtx110700905p.pdf>

72. **R. F. Boisvert**, Computational Science Issues in Nanoscale Metrology, in *Instrumentation and Metrology for Nanotechnology*, Report of the National Nanotechnology Initiative Workshop, January 27-29, 2004 (M. Postek and R. Hocken, Co-Chairs), National Science and Technology Council, 2006, pp. 97–105.
73. **R. F. Boisvert**, L.A. Drummond, and Osni A. Marques, Introduction to the Special Issue on the Advanced Computational Software (ACTS) Collection, *ACM Transactions on Mathematical Software*, vol. 31, no. 3, 2005, p. 281.
74. **R. F. Boisvert**, Program Library, in *Concise Encyclopedia of Computer Science*, (Edwin D. Reilly ed.), John Wiley & Sons, West Sussex, England, 2004, pp. 640–642.
75. **R. F. Boisvert** and Jack J. Dongarra, Introduction to the Special Issue on the Basic Linear Algebra Subprograms (BLAS), *ACM Transactions on Mathematical Software*, vol. 28, no. 2, 2002, pp. 133–134.
76. **R. F. Boisvert** and D.W. Lozier, Handbook of Mathematical Functions, in *A Century of Excellence in Measurements Standards, and Technology*, (D. Lide, ed.), CRC Press, 2001, pp. 135–139.
77. **R. F. Boisvert**, Program Libraries, Numerical and Statistical, in *Encyclopedia of Computer Science*, Fourth Edition, (Anthony Ralston, Edwin D. Reilly, and David Hemmendinger, eds.), Groves Dictionaries, 2000, pp. 1620–1624.
78. **R. F. Boisvert**, Wayne Dyksen, and Elias Houstis, Editorial: Special Issue in Honor of John Rice’s 65th Birthday, *ACM Transactions on Mathematical Software*, vol. 26, no. 2, 2000, pp. 224–226.
79. **R. F. Boisvert**, James Blue, Michael Donahue, Daniel Lozier, William Mitchell, Donald Porter, and Roldan Pozo, Measurement and Standards for Computational Science and Engineering, *ITL Bulletin*, Information Technology Laboratory, National Institute of Standards and Technology, March 1999.
80. **R. F. Boisvert**, NIST’s GAMS: A “Card Catalog” for the Computer User, *SIAM News*, vol. 27, no. 8, October 1994, pp. 1,8.
81. **R. F. Boisvert**, Program Libraries, Numerical and Statistical, in *Encyclopedia of Computer Science*, (Anthony Ralston and Edwin D. Reilly, eds.), Third Edition, 1993, Van Nostrand Reinhold, New York, pp. 1229–1232.
82. **R. F. Boisvert** and D. K. Kahaner, DEQSOL and ELLPACK: Problem Solving Environments for Partial Differential Equations, *ONR Far East Information Bulletin*, vol. 16, no. 1, 1991, pp. 7–19.
83. **R. F. Boisvert**, S. E. Howe, and D. K. Kahaner, The GAMS classification scheme for mathematical and statistical software, *SIGNUM Newsletter*, vol. 18, no. 1, Jan. 1983, pp. 10–18.

84. **R. F. Boisvert**, *High Order Finite Difference Methods for Elliptic Boundary Value Problems*, Ph.D. dissertation, Purdue University, 1979.

#### Technical Reports

85. **R. F. Boisvert**, ed., Applied and Computational Mathematics Division, Summary of Activities for Fiscal Year 2018, NISTIR 8251, National Institute of Standards and Technology, May 2019 (148 pages).
86. **R. F. Boisvert**, ed., Applied and Computational Mathematics Division, Summary of Activities for Fiscal Year 2017, NISTIR 8208, National Institute of Standards and Technology, April 2018 (143 pages).
87. **R. F. Boisvert**, ed., Applied and Computational Mathematics Division, Summary of Activities for Fiscal Year 2016, NISTIR 8175, National Institute of Standards and Technology, March 2017 (135 pages).
88. **R. F. Boisvert**, ed., Applied and Computational Mathematics Division, Summary of Activities for Fiscal Year 2015, NISTIR 8132, National Institute of Standards and Technology, May 2016 (133 pages).
89. **R. F. Boisvert**, ed., Applied and Computational Mathematics Division, Summary of Activities for Fiscal Year 2014, NISTIR 8056, National Institute of Standards and Technology, April 2015 (141 pages).
90. **R. F. Boisvert**, ed., Applied and Computational Mathematics Division, Summary of Activities for Fiscal Year 2013, NISTIR 7994, National Institute of Standards and Technology, March 2014 (126 pages).
91. **R. F. Boisvert**, ed., Applied and Computational Mathematics Division, Summary of Activities for Fiscal Year 2012, NISTIR 7931, National Institute of Standards and Technology, April 2013 (123 pages).
92. **R. F. Boisvert**, ed., Applied and Computational Mathematics Division, Summary of Activities for Fiscal Year 2011, NISTIR 7856, National Institute of Standards and Technology, May 2012 (120 pages).
93. **R. F. Boisvert**, ed., Applied and Computational Mathematics Division, Summary of Activities for Fiscal Year 2010, NISTIR 7762, National Institute of Standards and Technology, February 2011 (116 pages).
94. **R. F. Boisvert**, ed., Mathematical and Computational Sciences Division, Summary of Activities for Fiscal Year 2009, NISTIR 7671, National Institute of Standards and Technology, February 2010 (110 pages).

95. **R. F. Boisvert**, S. E. Howe, D. K. Kahaner, and J. L. Springmann, *The Guide to Available Mathematical Software*, National Institute of Standards and Technology Internal Report NISTIR 90-4237 (also PB90-216508/AS, National Technical Information Service, Springfield, VA 22161), March 1990, (682 pages).
96. **R. F. Boisvert**, S. E. Howe, and J. L. Springmann, *Internals of the Guide to Available Mathematical Software*, National Institute of Standards and Technology, NISTIR 89-4042 (also PB89-170864/AS, National Technical Information Service, Springfield, VA 22161) March 1989, (55 pages).
97. **R. F. Boisvert**, S. E. Howe, and D. K. Kahaner, *The Guide to Available Mathematical Software*, National Bureau of Standards, NBSIR 84-2824 (also PB-84171305, National Technical Information Service, Springfield, VA 22161), 1984, (448 pages).