

CURRICULUM VITAE for DR. ALAN GENZ

1 Background

• Personal Information

Address: Department of Mathematics, PO Box 643113, Pullman, WA 99164-3113, USA;

Email: alangen@wsu.edu; **Telephone:** (509) 335-2131; **Fax:** (509) 335-1188 ;

Website: <http://www.math.wsu.edu/faculty/genz>; **BirthDate:** 22 January, 1947.

• Education

Undergraduate: Beloit College, Beloit, WI, B.A. 5/69, Mathematics and Physics (Cum Laude)

Graduate: University of Kent, Canterbury, UK, Ph.D. 7/76, Applied Mathematics

• Employment

9/66–12/66: Actuarial Assistant, Liberty Mutual Insurance Company, Boston, MA

9/67–12/67: Undergraduate Research Assistant, Ames Laboratory, Iowa State University

9/69–8/71: Research Assistant, School of Mathematical Studies, University of Kent, UK

9/71–8/83: Lecturer in Applied Mathematics, University of Kent, UK

1/74–8/76: Tutor-Counselor (Part-time), The Open University, UK

9/76–5/77: Visiting Assistant Professor, Northern Illinois University

6/77–8/77: Summer Research Visitor, Argonne National Laboratory

9/83–4/85: Associate Professor of Mathematics and Computer Science, Washington State University

1/86–12/89: Intermittent Visiting Faculty, NIST, Washington, DC

6/87–7/87: Summer Research Visitor, Argonne National Laboratory

5/85–8/92: Associate Professor of Computer Science, Washington State University (Tenure 1986)

9/92–4/95: Associate Professor of Mathematics and Computer Science, Washington State University

8/00–8/06: Chair, Mathematics Department, Washington State University

5/95–present: Professor of Mathematics, Washington State University

2 Teaching Experience

• Courses Taught

– FORTRAN (WSU: F-S'92, S'85, S'88), BASIC (UK: F'80), Pascal (WSU: F'86).

– Data Structures (WSU: S'89-90, S'84-5, F'84).

– Programming Language Design (WSU: S'86).

– Parallel Algorithms (WSU: W'87-9).

– Open University Mathematics Foundation Course (UK: F'75-6, S'74-5).

– Engineering Mathematics (UK: F,S'73-4), Mathematical Modeling (UK: S'82).

– Newtonian Mechanics (UK: W'72-73), Graph Theory (UK: S'82).

– Numerical Computation (WSU: F'83'85'93-4).

– Precalculus (WSU: F'92), Calculus (NIU: F'76).

– Discrete Mathematics (WSU: F'86), Mathematical Computing (WSU: W'99).

– Vector Calculus (UK: S'78, WSU F'08, S'09).

- Linear Algebra (WSU: Su'98-00, F'96-97'99).
- Probability and Statistics (WSU: F'97).
- Principles of Optimization (WSU: S'98'08).
- Partial Differential and Integral Equations (UK: S'74-6).
- Numerical Solution of Differential Equations (UK: F'79-82; WSU: F'84).
- Numerical Linear Algebra (WSU: F'86-90'93-5, S'00'08).
- Approximation Theory (UK: W'78-81; WSU: Su'94, S'99'03'05'11).
- Differential Equations (NIU: S'77; WSU: F'98-9'06'12'14, S'01'11'13).
- Calculus for Life Scientists (WSU: F'08'09'11'12, S'10'14'15).
- Simulation Methods (WSU: F'07'09'11'14).
- Numerical Analysis (UK: F'71-6; WSU: F'95'10, S'83-4'87-96'02'04'06'12'14).
- Applied Math Seminar(Coordinator) (WSU: '97-9,'09-10).

- **Ph. D. Students**

- A. A. Malik, Univ. Kent Math 1980: Multiple Numerical Integration
- R. Hellier, Univ. Kent Math 1983: Parallel Banded System Solution
- J. Marsaglia, WSU Cpt S 1988: Approximation of Special Functions
- S. Chung, WSU Cpt S 1990: Parallel Radiosity Methods
- G. Trinh, WSU Math 2013, Bivariate Conditioning Methods

- **M. S. Students**

- E. P. Opyene, Math 1982: Shooting Methods for Boundary Value Problems
- W. Liang, Math 1984: Numerical Integration for Triangles
- C. Breshears, Cpt S 1985: Parallel Factorization Algorithms
- B. Zhang, Cpt S 1986: Vectorization of ADI and LOD Methods
- Q. Y. Han, Math 1986: Parallel One-Dimensional Integration
- B. Worobec, Cpt S 1986: Vectorization of 3-D ADI Methods
- S. Lan, Cpt S 1987: Numerical Integration for Spherical Surfaces
- M. Lieu, Cpt S 1988: ADI-Galerkin Implementation
- Y. Hu, Cpt S 1988: Numerical Integration for Tetrahedra
- Y. Hsu, Cpt S 1989: Parallel Adaptive Integration
- T. Shin, Cpt S 1990: Adaptive Numerical Integration over Tetrahedra
- Y. Yang, Cpt S 1990: Numerical Simulation of Shocks
- K. Thomas, Cpt S 1991: Strassen LUP Decomposition Implementation
- B. Norton, Cpt S 1991: System Malfunction Diagnostic Expert System
- Y. Li, Cpt S 1992: A Hybrid Algorithm for Feedforward Neural Networks
- X. Wang, Cpt S 1992: Implementation of K-D Trees for CDRS
- E. Mericle, Cpt S 1992: Calculation of Multivariate Normal Probabilities
- Y. Ge, Cpt S 1994: Calculation of Bi and Trivariate Normal Probabilities
- G. Li, Math 1995: Algorithms for Linear Data Approximation
- K. Sampson, Math 1996: The Method of Collocation
- P. Sinhua, Cpt S 1996: Diffusion Induced Chaos and Numerical Stability
- X. Chen, Cpt S 1996: An Error Measure for Data Approximations
- M. Zhu, Cpt S 1997: Limited Memory BFGS Algorithms with Diagonal Updating
- D. Vo, Math 1999: Computation and Display of a Stable Manifold

- V. Soldatenkova, Math 2001: Computation of Bivariate t-Distribution

- **Additional Teaching Service**

- Math 220x EDP Course Grader (WSU 1998-00)
- Member of approximately 100 MS and 100 PhD Committees (WSU 1983-)

- **Instructional Aids and Pedagogical Research Reports**

Course websites include course notes, computer tools, sample exams, textork solutions, with base url **genzurl** = www.math.wsu.edu/faculty/genz .

Berger, R., Early, T., Genz, A., Penkava, M., and Wells, C. (1997), Can You See the Span?, ATLAST Workshop '97 Module.

Genz, A. (1998), *Introductory Linear Algebra*, WSU EDP Math 220x Study Guide.

Genz, A. ('97-00), Website for Math 220, a complete Virtual Linear Algebra Course, genzurl/la.html .

Genz, A. (F'97), Website for Math 360, genzurl/la.html .

Genz, A. (F'98), Website for Math 300, genzurl/la.html .

Genz, A. (S'98'08), Website for Math 364, genzurl/la.html .

Genz, A. (S'98'99'01'11'13, F'06'12), Website for Math 315, genzurl/la.html .

Genz, A. (S'00'08), Website for Math 544, genzurl/la.html .

Genz, A. (F'08, S'09), Website for Math 273, genzurl/la.html .

Genz, A. (S'99'03'05'11), Website for Math 543, genzurl/la.html .

Genz, A. (F'07'09'11), Website for Math 4/516, genzurl/la.html .

Genz, A. (S'10, F'08'09'11'12), Website for Math 140, genzurl/la.html .

Genz, A. (S'96'02'04'06'10'12), Website for Math 4/548(Cpt S 4/530), genzurl/la.html .

3 Professional Experience

- **Departmental Service**

- Applied Mathematics Departmental Librarian (UK: 1979-82)
- Computer Science Colloquium Organizer (WSU: 1983-4)
- Mathematics Faculty Search Committee (WSU 1987-88,93-4)
- Computer Science Departmental Librarian (WSU 1987-9)
- Computer Science Faculty Search Committee *Chair* (WSU 1989-91)
- Computing, OR and Statistics Committee *Coordinator* (UK 1982-3)
- Computer Science Graduate Studies Committee *Chairman* (WSU 1984-6)
- Computer Science Undergraduate Committee *Chairman* (WSU 1986-9)
- ACM Student Chapter Advisor (WSU 1990-01)
- Computer Science Curriculum Committee *Chairman* (WSU 1990-91)
- Mathematics Placement Exam Committee *Chair 1995-6* (WSU 1993-95)
- Math Day Committee *Co-Chair 1994* (WSU 1993-95)
- Computer Coordinator Search Committee (WSU 1995)
- Mathematics Computing Committee *Chair 1997-9* (WSU 1995-99)
- Astronomy Search Committee (WSU 1996-77)
- Mathematics/ME Coordinating Committee (WSU 1996-7)
- Applied Mathematics M.S. Committee (WSU 1996-7)
- Statistics Search Committee (WSU 1997-8)

- Mathematical Sciences Committee (WSU 1997-9)
- Applied Mathematics Search Committee (WSU 1998-9)
- Mathematics Colloquium Committee (WSU 1999-01)
- Mathematics Alumni Relations, BOV and Scholarships Committee (WSU *Chair* 2003-04)
- External Relations Committee (WSU *Chair* '04-06)
- Scholarship Committee (WSU '04-06)
- Mathematics Scholarship Committee (WSU '04-06)
- *Chairman* for Mathematics Department (WSU '00-06)
- Mathematics Library Liason (WSU 2007-)
- Scientific Computing Graduate Minor Committee *Chairman 1995-* (WSU 1990-)
- Mathematics Math 099 Committee *Chairman* (WSU '00)
- Mathematics Placement Test Committee *Chairman 1995-6*(WSU '94-96)
- Undergraduate Mathematics Committee (WSU '08-13)
- Undergraduate Mathematics Certification Approval (WSU '08-13)
- Undergraduate Mathematics Advisor (UK '71-83, WSU '91-2,'95-00,'08-13)
- Mathematics Qualifying Exam Committee (WSU F'84'90'96'99'07'09'11,S'14)
- Graduate Handbook Review Committee *Chairman* (WSU '11)
- Mathematics Social Committee *Chairman* (WSU '11-13)

- **University Service**

- Computer Users Committee *Chairman* (UK 1981-83)
- Faculty Senate (UK 1980-3; WSU 1986-90)
- University Scholarship Committee (WSU 1984-5)
- Division of Sciences Dean Search Committee (WSU 1988-1990)
- Executive Policy Board for Computing and Telecommunications (WSU 1988-90)
- Academic Steering Committee for Computing and Telecommunications, *Chairman 1989-90* (WSU 1988-90)
- Graduate Student Travel Grant Committee (WSU 1990-1)
- Advisory Committee to the Sciences Library (WSU 1993-6)
- Assessment Review Committee (WSU 1996-7)
- Summer Alive Orientation Advisor (WSU 1996-00)
- Division of Sciences Undergraduate Advisory Committee (WSU 1999-00)
- Division of Sciences Tenure Review Committee (WSU 1999-00)
- All University Mathematics Committee (WSU 2001-6)
- *Chairman* for Mathematics Department (WSU 2000-06)
- New Faculty Seed Grant Review Panel (WSU 2009-12)

- **State Service**

- Washington Technology Center Computer Advisory Committee (1991-2 Seattle, WA)

- **International Service**

- Numerical Algorithms Group (NAG) Quadrature Committee (UK 1977-2001)
- NATO Advanced Research Workshop on Numerical Integration, Organizing Committee (1986 Halifax, NS)
- NATO Advanced Research Workshop on Numerical Integration, **Invited** Session Chair (1986 Halifax, NS)

- NATO Advanced Research Workshop on Numerical Integration, Organizing Committee (1991 Bergen, Norway)
- NATO Advanced Research Workshop on Numerical Integration, **Invited** Session Chair (1991 Bergen, Norway)
- SIAM Conference on Simulation and Monte Carlo Methods, **Invited** Session Chair (1993 San Francisco, CA)
- Interface '94 Conference on Computing Science and Statistics, Session Chair (1994 Research Triangle Park, NC)
- PNWNAS Meeting, Co-Organizer, (1994 Pullman, WA)
- Interface '95 Conference on Computing Science and Statistics, **Invited** Session Organizer (1995 Pittsburgh, PA)
- SIAM National Conference, **Invited** Session Chair (1997 Palo Alto, CA)
- Interface '99 Conference on Computing Science and Statistics, **Invited** Session Chair (1999 Schaumburg, IL)
- MCM 2005 Conference on Monte Carlo Methods, Session Chair (2005 Tallahassee, FL)
- MCQMC 2006 Conference on Monte Carlo and Quasi-Monte Carlo Methods, Session Chair (2006 Ulm, Germany)
- MCQMC 2010 Conference on Monte Carlo and Quasi-Monte Carlo Methods, Program Committee (2009-10)
- MCQMC 2010 Conference on Monte Carlo and Quasi-Monte Carlo Methods, Session Chair (2010 Warsaw, Poland)
- PNWNAS 2010 Co-Organizer, (2010, Pullman, WA)
- PNWNAS 2010 Session Chair, (2010, Pullman, WA)
- External PhD Examiner: U of Belfast, Northern Ireland ('82), LaTrobe U, Australia ('92,'05), KUL, Belgium ('07,'08), Carleton U, Canada ('11), U Waterloo, Canada ('11-12)
- MCQMC 2012 Conference on Monte Carlo and Quasi-Monte Carlo Methods, Program Committee (2011-12)
- MCQMC 2014 Conference on Monte Carlo and Quasi-Monte Carlo Methods, Program Committee (2013-14)
- MCQMC 2014 Conference on Monte Carlo and Quasi-Monte Carlo Methods, Session Organizer and Session Chair (2014 Leuven, Belgium)

- **Refereeing**

- *Journal of the American Statistical Association, Statistics and Computing*
- *Journal of Computational and Graphical Statistics, IMA Journal*
- *Computational Statistics and Data Analysis, Mathematics of Computation*
- *Journal of Statistical Computation and Simulation, Computer Journal,*
- *SIAM Journal of Numerical Analysis, Journal of Computational Physics*
- *Journal of Computational and Applied Mathematics, Journal of Econometrics*
- *ACM Transactions on Mathematical Software, Computer Algorithms*
- *IEEE Transactions on Computing, Information Processing Letters*
- *Kybernetika, Communications in Statistics*
- *Applied Numerical Mathematics, Transportmetrica*
- *Biometrical Journal, Journal of Royal Statistical Society B*
- *Quantitative Finance, Computational Statistics*
- *Journal of Statistical Planning and Inference, Applied Mathematics and Computation*

- **Reviewing**

- National Science Foundation (1988-), Washington Technology Center (1991-2)
- Natural Science and Engineering Research Council of Canada (1999,2006)
- Hong Kong Research Grants Council (1998-2004)
- Mathematics Abstracts (1990-00), Computing Reviews (1985-00)

- **Memberships**

- Society for Industrial and Applied Mathematics (1978-)
- American Mathematical Society (1992-), Mathematical Association of America (1970-)
- American Statistics Association (1995-2005), Institute of Mathematical Statistics (1992-)
- Numerical Algorithms Group (UK, 1977-2000)
- Association for Computing Machinery (1983-1992), IEEE Computer Society (1984-91)
- Institute for Math and its Applications (UK, Associate Fellow, 1973-88)

4 Research Work

- **Research Areas**

- Statistical Numerical Multiple Integration
- Numerical Evaluation of Multiple Integrals
- Testing and Development of Scientific Software
- Numerical Algorithms for Parallel Computers
- Numerical Solution of Partial Differential Equations
- Extrapolation Methods
- Approximation Theory

- **Research Work Published or Accepted for Publication**

1. **Genz, A., Chisholm, J. S. R. and Rowlands, G. (1972)**, Accelerated Convergence of Sequences of Quadrature Approximations, *J. Comp. Phys.* **10**, pp. 284–307.
2. **Genz, A. (1972)**, An Adaptive Multidimensional Quadrature Procedure, *Comp. Phys. Comm.* **4**, pp. 11–15.
3. **Genz, A. (1973)**, The Epsilon Algorithm and Some Other Applications of Pade Approximants in Numerical Analysis, in *Pade Approximants*, P.R. Graves–Morris (Ed.), Institute of Physics, London, pp. 112-125.
4. **Genz, A. (1973)**, Applications of the Epsilon Algorithm to Quadrature Problems, in *Pade Approximants and Their Applications*, P.R. Graves–Morris (Ed.), Academic Press, pp. 105-116.
5. **Genz, A. (1974)**, Some Extrapolation Methods for Numerical Calculation of Multidimensional Integrals, in *Software for Numerical Mathematics*, D.J. Evans (Ed.), Academic Press, pp. 159–172.
6. **Genz, A. (1975)**, *The Approximate Calculation of Multidimensional Integrals using Extrapolation Methods*, Ph. D. Thesis, University of Kent at Canterbury, Canterbury, UK.
7. **Chisholm, J. S. R., Pusterla, M., and Genz, A. (1976)**, A Method for Computing Feynman Amplitudes with Branch Cuts, *J. Comp. Appl. Math.* **2**, pp. 73–77.
8. **Genz, A. (1977)**, A Nonlinear Method for the Acceleration of the Convergence of Multidimensional Sequences, *J. Comp. Appl. Math.* **3**, pp. 181–4.
9. **Genz, A., and Hopkins, T. R. (1979)**, A Basic For All Machines, *Datalink* June 5, pp. 17–18.
10. **Genz, A., and Lyness, J. N. (1980)**, On Simplex Trapezoidal Rule Families, *SIAM J. Numer. Anal.* **17**, pp. 126–149.

11. **Genz, A., and Hopkins, T. R. (1980)**, Portable Numerical Software for Microcomputers, in *Production and Assessment of Numerical Software*, M. A. Hennell and L. M. Delves (Eds.), Academic Press, London, pp. 179–190.
12. **Genz, A., and Malik, A. A. (1980)**, An Adaptive Algorithm for Numerical Integration over an N-Dimensional Rectangular Region, *J. Comp. Appl. Math.* **6**, pp. 295–302.
13. **Genz, A. (1982)**, A Lagrange Extrapolation Algorithm for Sequences of Approximations to Multiple Integrals, *SIAM J. Sci. Stat. Comp.* **3**, pp. 160–172.
14. **Genz, A. (1982)**, Numerical Multiple Integration on Parallel Computers, *Comp. Phys. Comm.* **26**, pp. 349–352.
15. **Genz, A., and Malik, A. A. (1983)**, An Imbedded Family of Multidimensional Integration Rules, *SIAM J. Numer. Anal.* **20**, pp. 580–589.
16. **Genz, A., and Swayne, D. (1984)**, Parallel Implementation of ADL0D Methods, in *Parallel Computing 83*, M. Feilmeier, G. Joubert, and U. Schendel (Eds.), North Holland, pp. 167–172.
17. **Genz, A. (1984)**, Testing Multiple Integration Software, in *Tools, Methods and Languages for Scientific and Engineering Computation*, B.Ford, J-C. Rault and F. Thomasset (Eds.), North Holland, pp. 81–94.
18. **Genz, A., and Kahaner, D. K. (1986)**, The Numerical Evaluation of Certain Multivariate Normal Integrals, *J. Comp. Appl. Math.* **16**, pp. 255–258.
19. **Genz, A. (1986)**, Fully Symmetric Interpolatory Rules for Multiple Integrals, *SIAM J. Numer. Anal.* **23**, pp. 1273–1283.
20. **Genz, A. (1987)**, A Package for Testing Multiple Integration Subroutines, in *Numerical Integration*, P. Keast and G. Fairweather (Eds.), D. Riedel, pp. 337–340.
21. **Genz, A. (1987)**, The Numerical Evaluation of Multiple Integrals on Parallel Computers, in *Numerical Integration*, P. Keast and G. Fairweather (Eds.), D. Riedel, pp. 219–230.
22. **Genz, A. (1989)**, Matrix Methods for the Forced Diffusion Equation, *International Journal of Computer Mathematics*, **30**, pp. 57–69.
23. **Genz, A. (1989)**, Parallel Adaptive Algorithms for Multiple Integrals, in *Mathematics for Large Scale Computing*, J. C. Diaz, (Ed.), Marcel Dekker, New York, pp. 35–48.
24. **Genz, A. (1990)**, Numerical Quadrature on a PC, *SIAM News* **23** (1990), No. 1, p. 16.
25. **Berntsen, J., Espelid, T. O., and Genz, A. (1990)**, An Automatic Integration Routine Applicable in Linear and Nonlinear Acoustics, in *Frontiers of Nonlinear Acoustics: Proceedings of 12th ISNA*, M. F. Hamilton and D. T. Blackstock, (Eds.) Elsevier Science Publishers Ltd., London, pp. 609–614.
26. **Genz, A. (1990)**, Solution to SIAM Review Problem 89–20: Probabilistic Ethics, *SIAM Review*, **32**, pp. 687–688.
27. **Gibbs, A., Boyd, J.P., Chicatelli, S.P., Crow, J.A., Dorman, C., Gupta, M., Genz, A., Grosjean, C.C., Guggenheimer, H., Haag, M., Haber, S., Imre, K., Weitzner, H., Jordan, W.B., Kinkel, J.F., Kurtze, D.A., Larsen, J.K., Lau, K.W., Mccray, P.D., Oconnor, A.J., Renardy, M., Sezginer, R.S., Smith, E.L., Steinberg, H.A., Terrell, R., Wagner, P., Waller, N., Wilkins, J.E., Wilson, G., Xu, J.C. (1990)**, Numerical evaluation of a slowly convergent series, *SIAM Review*, **32**(3), pp. 481–483.
28. **Genz, A. (1991)**, Subregion Adaptive Algorithms for Multiple Integrals, in *Statistical Multiple Integration*, N. Flournoy and R. K. Tsutakawa (Eds.), Contemporary Mathematics Series Volume 115, American Mathematical Society, Providence, Rhode Island, pp. 23–32.
29. **Genz, A. (1991)**, An Adaptive Numerical Integration Algorithm for Simplices, in *Computing in the 90s, Proceedings of the First Great Lakes Computer Science Conference*, N. A. Sherwani, E. de Doncker and J. A. Kapenga (Eds.), Lecture Notes in Computer Science Volume 507, Springer-Verlag, New York, pp. 279–292.
30. **Genz, A., Lin, Z., Jones, C., and Prenzel, T. (1991)**, Fast Givens Goes Slow in MATLAB, *ACM SIGNUM Newsletter* **26**, No. 2, pp. 11–16.
31. **Genz, A., and Kass, R. (1991)**, An Application of Subregion Adaptive Numerical Integration to a Bayesian Inference Problem, *Computing Science and Statistics* **23**, pp. 441–444.
32. **Berntsen, J., Espelid, T. O., and Genz, A. (1991)**, Algorithm 698: DCUHRE—An Adaptive Multidimensional Integration Routine for a Vector of Integrals, *ACM Trans. Math. Softw.* **17**, pp. 452–456.

33. **Berntsen, J., Espelid, T. O., and Genz, A. (1991)**, An Adaptive Algorithm for the Approximate Calculation of Multiple Integrals, *ACM Trans. Math. Softw.* **17**, pp. 437–451.
34. **Genz, A. (1992)**, Statistics Applications of Subregion Adaptive Multiple Numerical Integration, in *Numerical Integration: Recent Developments, Software and Applications*, T. O. Espelid and A. Genz (Eds.), Kluwer Academic Publishers, Dordrecht, pp. 267–280.
35. **Espelid, T. O., and Genz, A. (Editors) (1992)**, *Numerical Integration: Recent Developments, Software and Applications*, Kluwer Academic Publishers, Dordrecht.
36. **Genz, A. (1992)**, Numerical Computation of Multivariate Normal Probabilities, *J. Comp. Graph. Stat.* **1**, pp. 141–150.
37. **Erkanli, A., Kass, R. and Genz, A. (1992)**, Adapting Subregion Adaptive Integration Software to Problems in Bayesian Inference , *Computing Science and Statistics* **24**, pp. 179–181.
38. **Genz, A. (1993)**, Subdivision Methods for Adaptive Integration over Hyperspheres, in *Numerical Integration IV, ISNM 112*, H. Brass and G. Hämmerlin (Eds.), Birkhäuser Verlag, Basel, pp. 131–140.
39. **Li, Y., Joerding, W., and Genz, A. (1993)**, Global Training of Feedforward Neural Networks with Hybrid LLS/Simulated Annealing, in *Proceedings of World Congress on Neural Networks, Volume 3*, International Neural Network Society, Woodbury, NJ, pp. 393–396.
40. **Genz, A. (1994)**, Review of *Handbook of Integration* by Daniel Zwillinger, *Bulletin of the AMS* **30**, pp. 156–157.
41. **Genz, A. (1994)**, A Comparison of Methods for Numerical Computation of Multivariate Normal Probabilities, *Computing Science and Statistics* **25**, pp. 400–405.
42. **Genz, A. (1994)**, Computation of Statistics Integrals using Subregion Adaptive Numerical Integration, *COMPSTAT 1994*, R. Dutter and W. Grossmann (Eds.), Physica Verlag, Heidelber, pp. 46–51.
43. **Espelid, T. and Genz, A. (1994)**, An Algorithm for Automatic Integration of Singular Functions over a Hyperrectangular Region, *Numerical Algorithms* **8**, pp. 201–220.
44. **Genz, A., and Monahan, J. (1995)**, Random Integration Rules for Statistical Computation, *Computing Science and Statistics* **26**, pp. 135–138.
45. **Genz, A., and Monahan, J. (1995)**, Random Integration Rules for Statistical Computation, pp. 182–187 in *1994 Proceedings of the Statistical Computing Section*, American Statistical Association, Alexandria, VA.
46. **Genz, A. (1996)**, Review of *Lattice Methods for Multiple Integration* by Ian Sloan and Stephen Joe, *SIAM Review* **38**, pp. 165–166.
47. **Genz, A., and Keister, B. (1996)**, Fully Symmetric Interpolatory Rules for Multiple Integrals over Infinite Regions with Gaussian Weight, *J. Comp. Appl. Math.* **71**, pp. 299–309.
48. **de Doncker, E., Gupta, A., Ball, J., Ealy, P., Liu, J., and Genz, A. (1996)**, ParInt: A Software Package for Parallel Integration, pp. 149–156 in *Proceedings of the 10th ACM International Conference on Supercomputing*.
49. **de Doncker, E., Gupta, A., Ealy, P., Liu, J., Sureka, A., and Genz, A. (1996)**, Use of ParInt for Parallel Computation of Statistics Integrals, *Computing Science and Statistics* **27**, pp. 462–470.
50. **Monahan, J., and Genz, A. (1996)**, A Comparison of Omnibus Methods for Bayesian Computation, *Computing Science and Statistics* **27**, pp. 471–480.
51. **Genz, A., and Monahan, J. (1996)**, *Comments* on Methods for Approximating Integrals in Statistics with Special Emphasis on Bayesian Integration Problems, Michael Evans and Tim Swartz, *Statistical Science* **11**, pp. 56–57.
52. **Genz, A., and Kass, R. (1997)**, Subregion Adaptive Integration of Functions Having a Dominant Peak, *J. Comp. Graph. Stat.* **6**, pp. 92–111.
53. **Monahan, J., and Genz, A. (1997)**, Spherical-Radial Integration Rules for Bayesian Computation, *JASA* **92**, pp. 664–674.
54. **Genz, A., and Monahan, J. (1998)**, Stochastic Integration Rules for Infinite Regions, *SIAM J. Sci. Com.* **19**, pp. 426–439.
55. **Genz, A. (1998)**, Stochastic Methods for Multiple Integrals over Unbounded Regions, *Mathematics and Computers in Simulation* **47**, 287–298.

56. **de Doncker, E., Genz, A., Gupta, A., and Zanny, R. (1998)**, Tools for Distributed Adaptive Multivariate Integration on NOW's: Parint 1.0 *Supercomputing '98*.
57. **Genz, A. and Bretz, F. (1999)**, Numerical Computation of Multivariate t Probabilities with Application to Power Calculation of Multiple Constrasts, *J. Stat. Comp. Simul.* **63**, pp. 361–378.
58. **deDoncker, E., Ciobanu, M. and Genz, A. (1999)**, Parallel Computation of Multivariate Normal Probabilities, *Computing Science and Statistics* **31**, pp. 89–93.
59. **Genz, A. (1999)**, Finding Critical Values Using Numerical Integration, *Computing Science and Statistics* **31**, pp. 263–266.
60. **Genz, A., and Monahan, J. (1999)**, A Stochastic Algorithm for High Dimensional Multiple Integrals over Unbounded Regions with Gaussian Weight, *J. Comp. Appl. Math.*, **112**, pp. 71–81.
61. **Genz, A. (1999)**, Methods for Generating Random Orthogonal Matrices, in *Monte Carlo and Quasi-Monte Carlo Methods 1998*, H. Niederreiter and J. Spanier (Eds.), Springer-Verlag, Berlin, pp. 199–213.
62. **Genz, A. and Kwong, Koon-Shing, (2000)**, Numerical Evaluation of Singular Multivariate Normal Probabilities. *J. Stat. Comp. Simul.* **68**, pp. 1–21.
63. **Bretz, F. Hothorn, L. and Genz, A. (2000)**, New Tests on Trends for Dose-Response Analysis, in *Proceedings of the Biopharmaceutical Section*, American Statistical Association, Alexandria, VA, 2000, pp. 133–137.
64. **Genz, A. and Bretz, F. (2000)**, Numerical Computation of Critical Values for Multiple Comparison Problems, in *Proceedings of the Statistical Computing Section*, American Statistical Association, Alexandria, VA, 2000, pp. 84–87.
65. **deDoncker, E., Cucos, L., Zanny, R. and Genz, A. (2001)**, Parallel Computation of the Multivariate t -Distribution, in *High Performance Computing 2001*, A. Tentner (Ed.), Simulation Councils, Inc., pp. 129–134.
66. **Hothorn, T., Bretz, F. and Genz, A. (2001)**, On Multivariate t and Gauss Probabilities in R, *R News* **1**, pp. 27–29.
67. **Bretz, F., Genz, A. and Hothorn, L. (2001)**, On the Numerical Availability of Multiple Comparison Procedures, *Biometrical Journal* **43**, pp. 645–656.
68. **Bretz, F., Hayter, A. J. and Genz, A. (2001)**, Critical Point and Power Calculations for the Studentised Range Test, *J. Stat. Comp. Simul.* **71**, pp. 85–97.
69. **Genz, A. and Bretz, F. (2002)**, Comparison of Methods for the Computation of Multivariate t Probabilities, *J. Comp. Graph. Stat.* **11**, pp. 950–971.
70. **Genz, A. and Bretz, F. (2002)**, Numerical Computation of High-Dimensional Integrals for Multiple Comparison Problems, in *2002 Proceedings of the American Statistical Association*, Statistical Computing Section, pp. 1145–1148, Alexandria, VA: American Statistical Association.
71. **Genz, A. and Cools, R. (2003)**, An Adaptive Numerical Cubature Algorithm for Simplices, *ACM Trans. Math. Soft.* **29**, pp. 297–308.
72. **Genz, A. (2003)**, Fully Symmetric Interpolatory Rules for Multiple Integrals over Hyper-Spherical Surfaces, *J. Comp. Appl. Math.* **157**, pp. 187–195.
73. **Genz, A. and Joyce, P. (2003)**, Computation of the Normalization Constant for Exponentially Weighted Dirichlet Distribution Integrals, *Computing Science and Statistics* **35**, pp. 557–563.
74. **Genz, A. (2004)**, Numerical Computation of Rectangular Bivariate and Trivariate Normal Probabilities, *Statistics and Computing* **14**, pp. 251–260.
75. **Genz, A., Bretz, F., and Hochberg, Yosef (2004)**, Approximations to Multivariate t Integrals with Application to Multiple Comparison Procedures, in *Recent Developments in Multiple Comparison Procedures*, Institute of Mathematical Statistics LNMS **47**, pp. 24–32.
76. **Genz, A. (2008)**, MCQMC Methods for Multivariate Statistical Distributions, *Monte Carlo and Quasi-Monte Carlo Methods 2006*, A. Keller, S. Heinrich, and H. Niederreiter (Eds.), Springer-Verlag, pp. 35–52.
77. **Sadefo-Kamdem, J. and Genz, A. (2008)**, Approximation of Multiple Integrals over Hyperboloids with Application to a Quadratic Portfolio with Options, *Computational Statistics and Data Analysis*, **52** (2008) pp. 3389–3407.

78. **Smith, A., Genz, A., Belenky, G., and Van Dongen, H.P.A. (2008)**, An efficient procedure for finding the 95% confidence interval of performance predictions based on the for Bayesian model predictions based on the two-process model, Meeting Abstract 1027, *SLEEP*, **31**, Supplement S, p. A338 .
79. **Smith, A., Genz, A., Freiburger, D.M., Belenky, G., and Van Dongen, H.P.A. (2009)**, Efficient computation of confidence intervals for Bayesian model predictions based on multidimensional parameter space, *Methods in Enzymology #454: Computer Methods*, M. Johnson and L. Brand (Eds), Elsevier, pp. 214–230.
80. **Genz, A. and Bretz, F. (2009)**, Computation of Multivariate Normal and t Probabilities, Lecture Notes in Statistics 195, Springer-Verlag, New York.
81. **Genz, A. and Smith, A. (2012)**, QMC Computation of Confidence Intervals for a Sleep Performance Model, *Monte Carlo and Quasi-Monte Carlo Methods 2010*, H. Wozniakowski and L. Plaskota (Eds.), Springer-Verlag, New York, pp. 373–384.
82. **Joyce, P., Genz, A. and Buzbas, E. (2012)**, Efficient Simulation Methods for a Class of Nonneutral Population Genetics Models, *Journal of Computational Biology* **19(6)**, pp. 650–661.
83. **Creamer, S. F., Genz, A., and Blatner, K. A. (2012)**, The Effect of Fire Risk on the Critical Harvesting Times for Pacific Northwest Douglas-Fir when Carbon Price is Stochastic, *Agricultural and Resource Economics Review* **41(3)**, pp. 313–326.
84. **Azais, J-M. and Genz, A. (2013)**, Computation of the Distribution of the Maximum of Stationary Gaussian Sequences and Processes, *Methodology and Computing in Applied Probability* **15**, pp. 969–985.
85. **Rabier, C-E. and Genz, A. (2014)**, The Supremum of Chi-Square Processes, *Methodology and Computing in Applied Probability* **16** pp. 715–725.
86. **Trinh, G. and Genz, A. (2014)**, Bivariate Conditioning Approximations for Multivariate Normal Probabilities, *Statistics and Computing* DOI: 10.1007/s11222-014-9468-y.

- **Work in Progress or Under Review**

- Dasgupta, J., Genz, A. and Lazar, N. (2014)** A Look at Multiplicity Through Misclassification, submitted to Sankhya.
- Trinh, G. and Genz, A. (2014)**, Numerical Computation of Multivariate Normal Probabilities Using Bivariate Conditioning, submitted to MCQMC 2014 Conference Proceedings.
- Ammon, A., Genz, A., Hartung, T., Jansen, K., Leovey, H. and Volmer, J. (2014)** On the efficient numerical solution of lattice systems with low-order couplings, submitted to Computer Physics Communications.

- **Unpublished Papers and Technical Reports**

- Genz, A. (1973)**, An Extrapolated Adaptive Multidimensional Integration Algorithm, University of Kent Mathematics Technical Report No. 17.
- Berntsen, J., Espelid, T. O., and Genz, A. (1988)**, A Test of ADMINT, University of Bergen Department of Informatics Technical Report No. 31.
- Chung, S. and Genz, A. (1989)**, A Parallel Form Factor Algorithm Based on Ray Coherence, WSU Computer Science Technical Report No. 89-207, 1989.
- Espelid, T. O. and Genz, A. (1992)**, On the Subdivision Strategy for Adaptive Cubature Algorithms for Triangular Regions, University of Bergen Department of Informatics Technical Report No. 74.
- Genz, A. and Cools, R. (1999)**, An Adaptive Numerical Cubature Algorithm for Simplices, Katholieke Universiteit Leuven Computer Science Department Technical Report TW273.
- Genz, A. and Joyce, P. (2008)**, Simulation from a Normally Weighted Dirichlet Distribution
- Jia, Panle, Pathak, Parag A., and Genz, Alan (2011)** , The Costs of Free Entry: Evidence from Real Estate Brokers in Greater Boston, Working Paper, MIT

- **Software**

Note: software from Genz homepage has base url **genzurls** = www.math.wsu.edu/faculty/genz/software .

1. **Genz, A. (1976)**, **D01BCF**: A Subroutine for Gauss Integration Rule Calculation, NAG Library Mark 7.
2. **Genz, A. (1978)**, **D01FCF**: An Adaptive Multidimensional Integration Subroutine, NAG Library Mark 8.

3. **Genz, A. (1979), D01FBF:** An Subroutine for Evaluating a Multidimensional Integration Rule, NAG Library Mark 9.
4. **Genz, A. (1981), D01GBF:** An Adaptive Subroutine for Multidimensional Monte-Carlo Integration, NAG Library Mark 10.
5. **Genz, A. (1981), D01PAF:** An Automatic Integration Subroutine for Integration over an N-Simplex, NAG Library Mark 10.
6. **Genz, A. (1984), D01EAF:** An Adaptive Multidimensional Vector Integration Subroutine, NAG Library Mark 12, 1984.
7. **Genz, A. (1997), BAYESPACK:** A Collection of Numerical Integration Software for Bayesian Analysis.
8. **Genz, A. (1998), MVNDST:** a set of Fortran subroutines, with sample driver program, for the numerical computation of multivariate normal integrals, with maximum dimension 100, available from www.math.wsu.edu/faculty/genz/homepage.
9. **Genz, A. (2000), MVT DST:** a set of Fortran subroutines, with sample driver program, for the numerical computation of multivariate t integrals, with maximum dimension 100, available from www.math.wsu.edu/faculty/genz/homepage.
10. **Genz, A. (2000-2005), ParInt:** NSF supported ParInt research project. The purpose of this project with Elise de Doncker and Ajay Gupta, is to develop and implement parallel algorithms for the numerical computation of multiple integrals. All software is available from www.cs.wmich.edu/~parint/.
11. **Genz, A. (2000-), CUBPACK:** the purpose of this project with Ronald Cools and Ann Haegemans, is to develop and implement algorithms for the numerical computation of multiple integrals. All software is available from www.cs.kuleuven.ac.be/~nines/research/CUBPACK/.
12. **Genz, A. (2001), SMPINT:** a set of Fortran subroutines, with sample driver program, for the numerical integration of a vector of integrals over a collection of simplices, available from genzurl .
13. **Genz, A. (2002), MVSTAT:** a set of Fortran 90 subroutines for the numerical computation of multivariate t integrals, with maximum dimension 100. This is a conversion of the best MVT DST software, with modifications that allow the integration regions to be specified using a set of linear inequalities. This software may also be used to compute multivariate normal integrals and critical values; available from genzurl .
14. **Genz, A. (2003), MVNLPS:** a Matlab function for the numerical computation of multivariate normal distribution values for ellipsoidal integration regions, available from genzurl .
15. **Genz, A. (2003), TVTL:** a set of Matlab functions, for the computation of univariate, bivariate and trivariate normal and t-probabilities, available from genzurl .
16. **Genz, A. (2003), QSIMVN:** a Matlab function with supporting functions, for the numerical computation of multivariate normal distribution values, available from genzurl .
17. **Genz, A. (2003), QSIMVT:** a Matlab function with supporting functions, for the numerical computation of multivariate t distribution values, available from genzurl .
18. **Genz, A. (2003), TVPACK:** a set of Fortran subroutines, with sample driver program, for the computation of univariate, bivariate and trivariate normal and t-probabilities, available from genzurl .
19. **Genz, A. (2004), TVNL:** a set of Matlab functions, for the computation of univariate, bivariate and trivariate normal probabilities. Available from genzurls .
20. **Genz, A. (2004), QSIMVNV:** a Matlab function with supporting functions, for the numerical computation of multivariate normal distribution values, a vectorized version of QSIMVN. Available from genzurls .
21. **Genz, A. (2004), QSCMVNV:** A Matlab function with supporting functions, for the numerical computation of multivariate normal distribution values. The integration region may be specified by a set of linear inequalities in the form $a < cx < b$, where x , a and b are m -vectors and c is an $m \times n$ matrix. Available from genzurls .
22. **Genz, A. (2005), QSIMVT:** A Matlab function with supporting functions, for the numerical computation of multivariate t distribution values. Available from genzurls .
23. **Genz, A. (2005), QSCMVT:** A Matlab function with supporting functions, for the numerical computation of multivariate t distribution values. The integration region may be specified by a set of linear inequalities in the form $a < cx < b$, where x , a and b are m -vectors and c is an $m \times n$ matrix. Available from genzurls .
24. **Genz, A. (2005), QSCMVTV:** a vectorized version of QSCMVT. Available from genzurls .

25. **Genz, A. (2006), SPHRUL:** A Matlab function, with supporting functions, for the computation of spherical surface integrals. SPHRLR is a randomized version of SPHRUL. Available from genzurls .
26. **Genz, A. (2006), QSIMVNEF:** A Matlab function with supporting functions, for the numerical computation of multivariate normal distribution expected values. The method used is similar to the method used for qsimvn, but qsimvnef also computes the expected value of a user specified function. Available from genzurls .
27. **Genz, A., Bretz, F. and Hothorn, T. (2006), MVTNORM:** an R package for computing multivariate normal and t probabilities, quantiles and densities. Available from cran.r-project.org/web/packages/mvtnorm
28. **Genz, A. (2007), QSILATMVNV:** a Matlab function with supporting functions, for the numerical computation of multivariate normal distribution values, using lattice rules. Available from genzurls .
29. **Genz, A. (2007), QSCLATMVNV:** A Matlab function with supporting functions, for the numerical computation of multivariate normal distribution values, using latticew rules. The integration region may be specified by a set of linear inequalities in the form $a < cx < b$, where x , a and b are m -vectors and c is an $m \times n$ matrix. Available from genzurls .
30. **Genz, A. (2008), QSIMVNEFV:** A Matlab function with supporting functions, for the numerical computation of multivariate normal distribution expected values. The method used is a vectorized version of qsimvnef. Available from genzurls .
31. **Genz, A. (2010), FWTPPTS:** A Matlab function with supporting functions, for the computation of points and weights for fully symmetric interpolatory rules (these are sparse-grid rules) for integration over hyper-cubes or Gaussian weighted hyperspace. Available from genzurls .
32. **Genz, A. (2010), GAUSND:** A Matlab function with supporting function, for the computation of a d-dimensional Gauss product rule. Gauss-Legendre, Hermite or Laguerre rules can be used. GAUSNDV is a vectorized version of this software. Available from genzurls .
33. **Genz, A. (2010), ADAPT:** A Matlab function with supporting functions, for the numerical A Matlab function for subregion adaptive integration of a vector of functions over a hyperrectangle. Available from genzurls .
34. **Genz, A. (2010), MGP:** A Matlab function with supporting functions, for the numerical computation of approximate upper and lower bounds for the maximum of a centered stationary Gaussian process $P(M_T > u)$, or $P(|M_T| > u)$. Available from genzurls .
35. **Genz, A. (2010), ADSIMP:** A Matlab function with supporting functions, for the numerical A Matlab function for subregion adaptive integration of a vector of functions over a set of simplices. Available from genzurls .
36. **Genz, A., Bretz, F. Miwa, T., Mi, X., Leisch, F., Scheipl, F., Bornkamp, B., and Hothorn, T. (2011), MVTNORM:** an R package for computing multivariate normal and t probabilities, quantiles, random deviates, and densities. Available from cran.r-project.org/web/packages/mvtnorm
37. **Genz, A., and Bornkamp, B. (2011), BAYESPACK:** an R package for integration for Bayesian Inference. Available from cran.r-project.org/web/packages/bayespack
38. **Genz, A., Bretz, F. Miwa, T., Mi, X., Leisch, F., Scheipl, F., Bornkamp, B., and Hothorn, T. (2012), MVTNORM:** an R package for computing multivariate normal and t probabilities, quantiles, random deviates, and densities. Available from cran.r-project.org/web/packages/mvtnorm
39. **Genz, A. (2013), MVNEXG:** A Fortran subroutine with supporting functions, for the numerical computation of multivariate normal distribution expected values. This computes the expected value of a user specified function, like qsimvnef Available from genzurls .
40. **Genz, A. (2013), TVN:** a set of Matlab functions, for the computation of univariate, bivariate and trivariate normal probabilities. Available from genzurls .
41. **Euloge Clovis Kenne Pagu, Antonio Canale, Alan Genz, Adelchi Azzalini (2015), PLordprob:** an R package for computing multivariate ordered probit model probabilities. Available from cran.r-project.org/web/packages/plordprob

- **Professional Papers Presented**

- An Adaptive Quadrature Procedure, Geneva, CERN Computational Physics Conference, 4/72.
- Applications of the ϵ -Algorithm, Canterbury, Kent, Padé Approximants Conference, 7/72, **Invited**.

- Padé Approximants, Canterbury, Kent, Padé Approximants Summer School, 7/72, **Invited**.
- Extrapolation Methods for Multiple Integrals, Loughborough, UK, IMA Meeting, 4/73.
- Acceleration of Multidimensional Sequences, Toulon, France, Padé Approximants Conference, 5/76.
- Portable Numerical Software for Micros, Liverpool, UK, NA Conference, 5/79.
- Parallel Methods for Multiple Integrals, Chester, UK, VAPP Conference, 8/82.
- Testing Multiple Integration Routines, Paris, INRIA Conference, 5/83.
- Parallel Implementation of ALOD Methods, Norfolk, VA, SIAM Meeting, 11/83.
- Interpolatory Rules for Multiple Integrals, Seattle, WA, SIAM Meeting, 7/84.
- A Multiple Integration Routine Test Package, Halifax, NS, NATO ARW, 8/86, **Invited**.
- Parallel Numerical Multiple Integration, Halifax, NS, NATO ARW, 8/86, **Invited**.
- Parallel Adaptive Multiple Integration, Denton, TX, AMS Meeting, 10/86, **Invited**.
- Adaptive Multiple Integration for Statistics, Arcata, CA, AMS-IMS-SIAM Workshop, 6/89, **Invited**.
- Adaptive Integration for Simplices, Kalamazoo, MI, Cpt S Conference, 10/89.
- Adaptive Integration for Hyper-Spheres, Chicago, IL, SIAM Meeting, 7/90.
- Performance of Quasi-Monte Carlo Methods, Fairbanks, AK, NSF Workshop, 8/90, **Invited**.
- Numerical Integration for Bayesian Analysis, Seattle, WA, Interface '91 Meeting, 4/91.
- Computation of Multivariate Normal Probabilities, Dundee, Scotland, Biennial NA Meeting, 6/91.
- Statistical Numerical Multiple Integration, Bergen, Norway, NATO ARW, 6/91, **Invited**.
- Adaptive Integration over HyperSpheres, Oberwolfach, Germany, Integration Meeting, 11/92, **Invited**.
- Comparison of Methods for Normal Probabilities, San Diego, CA, Interface '93 Meeting, 4/93.
- Computation of Multivariate t Probabilities, San Francisco, CA, SIAM Meeting, 8/93.
- Random Integration Rules for Statistical Computation, Res. Tri., NC, Interface '94 Meeting, 6/94.
- Computation of Statistics Integrals, Vienna, Austria COMPSTAT '94 Meeting, 8/94.
- Stochastic Integration Rules, PNWNAS Meeting, Western Washington University, 9/95, **Invited**.
- BAYESPACK, PNWSG Meeting, Simon Fraser University, 11/96, **Invited**.
- Stochastic Methods for Multiple Integrals, IMACS Monte Carlo Methods Seminar, Brussels, Belgium, 4/97.
- Parallel Stochastic Algorithms for Multiple Integrals, Palo Alto, CA, SIAM Annual Meeting, 7/97.
- Generation of Random Orthogonal Matrices, Claremont, CA, MCQMC98 Meeting, 6/98.
- Finding Critical Values using Numerical Integration, Schaumburg, IL, Interface '99 Meeting, 6/99.
- Review of MVN and MVT Computation Methods, University of Hannover, Germany, 6/99, **Invited**.
- Numerical Computation of Critical Values, Indianapolis, IN, JSM '00 Meeting, 8/00.
- Complexity of MVN and MVT Computations, Oberwolfach, Germany, Integration Meeting, 11/01, **Invited**.
- Computation for Multiple Comparison Problems, JSM '02 Meeting, New York, NY, 8/02, **Invited**.
- Computation of Normalization Constants, Salt Lake City, UT, Interface '03 Meeting, 3/03
- Software for Multivariate Statistical Distributions, Sydney, Australia, ICIAM 2003 Meeting, 7/03, **Invited**.
- Simulation from Exponential Weighted Dirichlet Distributions, MCM 2005 Meeting, Tallahassee, FL, 5/05.
- MCQMC for Multivariate Distributions, MCQMC 2006 Meeting, Ulm, Germany, 8/06, **Invited Plenary**.
- Computation of Dirichlet Distribution Probabilities MCQMC 2008 Meeting, Montreal, Canada, 7/08.
- QMC Computations for Sleep Performance Modeling MCQMC 2010 Meeting, Warsaw, Poland, 8/10.
- Multivariate Normal Computations with Bivariate Conditioning, MCQMC 2014 Meeting, Leuven, Belgium, 4/14.

- **Colloquia and Seminar Presentations**

- Interpolatory Multiple Integration Rules, University of Wisconsin, 9/82.

- Interpolatory Multiple Integration Rules, University of Toronto, Canada, 9/82.
- Interpolatory Multiple Integration Rules, University of Waterloo, Canada, 9/82.
- Parallel Numerical Algorithms, 4 talks, University of Guelph, Canada, 9/82.
- Algorithms for Multiple Integrals, National Bureau of Standards, 9/82.
- Interpolatory Rules for Multiple Integrals, Washington State University, 2/84.
- Parallel Methods for PDE's, 3 talks, University of Guelph, Canada, 5/84.
- Error Estimation for Multiple Integration, National Bureau of Standards, 11/84.
- Parallel Numerical Algorithms, Washington State University, 2/85.
- Numerical Multiple Integration, 2 talks, University of Bergen, Norway, 11/86.
- Subregion Adaptive Integration, Pittsburgh, PA, Carnegie-Mellon University, 11/89.
- Computation of Multivariate Normal Probabilities, University of Liverpool, UK, 9/91.
- Computation of Multivariate Normal Probabilities, University of Bergen, Norway, 10/91.
- Computation of Multivariate Normal Probabilities, North Carolina State University, 11/91.
- Numerical Integration over HyperSpheres, Washington State University, 10/92.
- Stochastic Integration Rules, Western Michigan University, 4/95.
- Stochastic Integration Rules, University of Bergen, Norway, 5/95.
- BAYESPACK, Statistics Program, Washington State University, 1/97.
- BAYESPACK, Statistics Department, University of Toronto, Canada, 2/97.
- BAYESPACK, Statistics Department, Carnegie Mellon University, 2/97.
- BAYESPACK, Math and Computer Science Departments, Western Michigan University, 2/97.
- BAYESPACK, Computer Science Department, Catholic University of Leuven, Belgium, 4/97.
- Review of MVN and MVT Computation Methods, WSU Statistics, 9/99.
- Review of MVN and MVT Computation Methods, Catholic University of Leuven, Belgium, 6/99.
- Computation of MVN Probabilities, Microsoft Research, Redmond, WA, 11/99.
- Computation of MVT Probabilities, MD Anderson Cancer Research Center, Houston, TX, 3/01.
- Numerical Computations for Multiple Comparison Problems, WSU Statistics, 9/01.
- MVN and MVT Probability Computations, University of Hannover, Germany, 11/01.
- Numerical Computation of Bivariate and Trivariate Normal and t Probabilities, WSU Statistics, 9/02.
- Computation of Multivariate Normal and t Probabilities, University of Toulouse, Toulouse, France, 5/08.
- Computation of Multivariate Normal and t Probabilities, Portland State University, Portland, OR, 5/10.
- Multivariate Distribution Computation Methods, University of Waterloo, Waterloo, ON, 11/11.
- Multivariate Normal Computations with Bivariate Conditioning Computer Science Department, Catholic University of Leuven, Belgium, 11/13.

• Grants, Honors and Awards

- General Motors Scholarship, Beloit College, 1965-69.
- Liberty Mutual Insurance Company Internship, Boston, MA, Fall 1966.
- Undergraduate Research Program Participant, Ames Laboratory, Iowa State University, Fall 1967.
- Beloit College Mathematics Prize, 1969.
- USAF Funded Research Assistantship, University of Kent, UK, 1969-71.
- Summer Research Visitor Award, \$25,000, Argonne National Laboratory, Argonne, Illinois, 1977.
- Travel Grant: \$3,000, Computer Science Department, University of Guelph, 9/82.
- Computer Time Grant for Parallel Algorithms: 15hr CRAY-XMP Time, NSF, 1985-87.
- Summer Research Visitor Award, \$25,000, Argonne National Laboratory, Argonne, Illinois, 1986.

- Intermittent Visiting Faculty Appointment, \$15,000, NIST, Washington, DC, 1986-89.
- Travel Grant: \$1,500, for NATO Advanced Research Workshop, Halifax, NS, NATO, 8/86.
- Parallel Computer Equipment Grant(Proposal Organizer): \$71,000, NSF, 1987.
- Minicomputer Equipment Grant(Proposal Contributor): \$250,000, AT&T, 1988.
- Computer Time Grant for Parallel Algorithms: 10hr CRAY-XMP Time, NSF, 1987-88.
- Research Scholar Award: \$3,000, Norwegian Marshall Fund, 6/88.
- Travel Grant: \$1,000, for AMS-IMS-SIAM Research Workshop, 6/89.
- Travel Grant: \$1,000, for NSF-CBMS Research Workshop, 8/90.
- Statistical Multiple Integration(Principal Investigator): \$30,000, NSF, 1990-92.
- Travel Grant: \$2,500, for NATO Advanced Research Workshop, Bergen, Norway, NATO, 6/91.
- Research Scholar Award: \$3,000, Norwegian Marshall Fund, 1991.
- Statistical Numerical Multiple Integration(Principal Investigator): \$65,000, NSF, 1992-95.
- Collaborative Research Grant: \$4,500, NATO, 1994-97.
- Travel Grant: \$750, for AMS-IMS-SIAM Research Workshop, 6/94.
- Parallel Multiple Numerical Integration(CoPI, subcontract from WMU): \$25,000, NSF, 1994-96.
- Bayesian Methods in Biostatistics (Consultant for \$1,000,000 grant to CMU): \$20,000, NIH, 1995-97.
- Instructional Support Minigrant: \$1,700, WSU Division of Sciences, 1997.
- Linear Algebra Workshop Support: \$500, ATLAST(NSF), 1997.
- Virtual Linear Algebra Class Development: \$25,000, Boeing, 1997-99.
- Collaborative Research Grant: \$2,500, NATO, 1998-99.
- Distributed Numerical Integration(CoPI, subcontract from WMU): \$35,000, NSF, 2000-02.
- Distributed Numerical Integration(CoPI, subcontract from WMU): \$35,000, NSF, 2002-04.
- Population Statistical Modeling and Simulation (CoPI, subcontract from UI): \$70,000, NSF, 2005-09.
- AARMS Summer School Invited Instructor, \$6,000, Halifax, Univ., Nova Scotia, 7/2007,
- Invited Professor, \$6,000, Univ. of Toulouse, Toulouse, France, 5/2008.
- Fast 3D Reconstruction Algorithms for Cryo-EM. (subcontract from Yale Univ.), \$40,000, NIH, 2010–13.

September 2, 2015