Curriculum Vitae

Dr. Horst D. Simon

Summary

Dr. Horst Simon was named Associate Laboratory Director (ALD) for Computing Sciences at Berkeley Lab in 2004. In his role as the ALD for Computing Sciences, Horst represents the interests of the Lab's scientific computing divisions, NERSC and Computational Research, in the formulation of Laboratory policy, and leads the overall direction of the two divisions. He also coordinates constructive interactions within the computing sciences divisions to seek coupling with other scientific programs.

Horst joined LBNL in early 1996 as director of the newly formed NERSC Division, and was one of the key architects in establishing NERSC at its new location in Berkeley. The NERSC Center is DOE's flagship supercomputing facility for unclassified research funded by DOE's Office of Science and is currently supports 2,677 users at more than 300 institutions. Under Horst's leadership, NERSC has enabled important discoveries in fields ranging from global climate modeling to combustion to astrophysics. Horst is also the founding director of Berkeley Lab's Computational Research Division, which conducts applied research and development in computer science, computational science, and applied mathematics. His research interests are in the development of sparse matrix algorithms, algorithms for large-scale eigenvalue problems, and domain decomposition algorithms for unstructured domains for parallel processing.

Horst's recursive spectral bisection algorithm is regarded as a breakthrough in parallel algorithms for unstructured computations, and his algorithm research efforts were honored with the 1988 Gordon Bell Prize for parallel processing research. Horst was member of the NASA team that developed the NAS Parallel Benchmarks, a widely used standard for evaluating the performance of massively parallel systems. He is also one of four editors of the twice-yearly "TOP500" list of the world's most powerful computing systems.

Address

Lawrence Berkeley National Laboratory   Office: (510) 486-7377
One Cyclotron Rd., M/S: 50B-4230   Fax: (510) 486-4300
Berkeley, California 94720   Email: hdsimon@lbl.gov

Current Positions

2004 – Present Associate Laboratory Director for Computing Sciences Lawrence Berkeley National Laboratory

2002 – Present Director, Computational Research Division Lawrence Berkeley National

Laboratory

1996 – Present	Director, National Energy Research Scientific Computing (NERSC) Center Lawrence Berkeley National Laboratory

Past Professional Experience (in reverse chronological order)

1994 – 1996	SILICON GRAPHICS, INC. Mountain View, CA Manager of Research Marketing Development
1989 – 1994	COMPUTER SCIENCES CORPORATION Dept. Head, Applied Research Department Contract to Numerical Aerodynamic Simulation (NAS) at NASA Ames Research Center, Moffett Field, CA
1983 – 1989	BOEING COMPUTER SERVICES Manager, Research Department, Moffett Field, CA. Boeing Technical Marketing Manager
1986 – 1987	Manager, Computational Mathematics, Bellevue, Washington Project Manager, Boeing Research Program Project Manager, NSF Supercomputer Initiative
1983 – 1986	Technical Staff Member, Computational Mathematics Group
1982 – 1983	STATE UNIVERSITY OF NEW YORK (SUNY), STONY BROOK Assistant Professor, Department of Applied Mathematics

Education

Diploma in Mathematik, Technische Universität Berlin, 1978.

Thesis "Numerical Solution of Parameter Nonlinear Eigenvalue Problems." (Numerische Lösung Parameter Nichtlinearer Eigenwertaufgaben.)

Thesis Advisor Prof. R. D. Grigorieff.

Ph.D., Mathematics, University of California, Berkeley, 1982.

Thesis: "The Lanczos Algorithm for the Solution of Symmetric Linear Systems."

Thesis Advisor Prof. Beresford N. Parlett.

Awards

H. Julian Allen Award (jointly with the NAS Parallel Benchmarks Team) for notable scientific papers written by authors at NASA Ames Research Center, for the NAS Parallel Benchmarks (1995).

Gordon Bell Prize (jointly with group from Cray and Boeing) in recognition of superior effort in parallel processing research (1988).

University Award, SUNY Stony Brook (1983).

Teaching

CS267, a one-semester graduate class in Applications of Parallel Computers, University of California, Berkeley.

Spring 1997 (jointly with Professor David Culler)

Fall 2002   (jointly with Professor James Demmel)

Numerical Analysis classes at SUNY Stony Brook (1982-83) and University of Washington, Seattle (1985).

Students and Postdocs

1. Eric Barsczc, Ph.D. thesis defense, Dept. of Computer Science, University of California, Santa Cruz, 1998.
2. *Parallel Computational Fluid Dynamics,* MIT Press, Cambridge, Mass., 1992.
3. Post docs: John (Kesheng) Wu, 1997-1999; Parry Husbands, 1999-2001; Ali Pinar, 2001-2003.

Publications

Books (Editor)

1. *Scientific Applications of the Connection Machine*, Conference Proceedings, World Scientific Publishing Company, Teaneck, New Jersey, July 1989; second edition 1992.
2. *Parallel Computational Fluid Dynamics,* MIT Press, Cambridge, Mass., 1992.
3. *Parallel Processing for Scientific Computing,* (with D. Bailey, P. Bjorstad, J. Gilbert, M. Mascagni, R. Schreiber, V. Torczon, and L. Watson), Proceedings of the 7th SIAM Conference, SIAM, Philadelphia, 1995.
4. *Solving Irregularly Structured Problems in Parallel* (with A. Fereira, J. Rolim, and Shang-hua Teng), Proceedings Irregular 98, Springer Lecture Notes in Computer Science No. 1457, August 1998.
5. *Frontiers of Parallel Processing for Scientific Computing,* (with Michael Heroux and Padma Raghavan), SIAM Philadelphia 2006, to appear.

Papers in Refereed Journals

1. "Estimating the Largest Eigenvalue of a Symmetric Positive Definite Matrix with the Lanczos Algorithm" (with B. Parlett and L. Stringer), Mathematics of Computation 38, 153-165, 1982.
2. "The Lanczos Algorithm with Partial Reorthogonalization, Mathematics of Computation," 42, 115-142, 1984.

3. "Analysis of the Symmetric Lanczos Algorithm with Reorthogonalization Methods, Linear Algebra and Its Appl.," 61, 101-131, 1984.

4. "The Solution of Large Dense Generalized Eigenvalue Problems on the Cray X-MP/24 with SSD," (with R. Grimes, H. Krakauer, J. Lewis, and S.-H. Wei), J. Comp. Physics Vol. 69 No. 2, pp 471-481, 1987.

5. "Evaluation of Orderings for Unsymmetric Sparse Matrices," (with A.M. Erisman, R.G. Grimes, J.G. Lewis, W.G. Poole, Jr.), SIAM J. Sci. Stat. Comp. Vol. 8, No. 4, pp. 600-624, 1987.

6. "Recent Progress in Sparse Matrix Methods for Large Linear Systems," (with C. Ashcraft, R. Grimes, B. Peyton, and J. Lewis), International Journal on Supercomputer Applications 1, No. 4, 1987, pp. 10-30.

7. "Early Experience with the SCS-40," (with R. Anderson, R. Grimes and R. Riebman), Supercomputer 22, 1987, pp. 34-44.

8. "Incomplete LU Preconditioners for Conjugate-Gradient-Type Iterative Methods, SPE Reservoir Engineering," February 1988, pp. 302-306.

9. "The Impact of Hardware Gather/Scatter on Sparse Gaussian Elimination," (with J.G. Lewis), SIAM J. Sci. Stat. Comp. 9, No. 2, pp. 304-311, 1988.

10. "Performance Comparison of the Cray X-MP/24 with SSD and the Cray-2," (with R. Anderson and R. Grimes), the Journal of Supercomputing 1, 409-418, 1988.

11. "Two Conjugate Gradient Type Methods for Sparse Unsymmetric Linear Equations," (with M. A. Saunders and E.L. Yip), SIAM J. Num. Analysis 25, No. 4, pp. 927-940, 1988.

12. "Solution of Large Dense Symmetric Generalized Eigenvalue Problems Using Secondary Storage," (with R. G. Grimes), ACM Transactions on Mathematical Software, Volume 14, Number 3, pp. 241-256, September 1988.

13. "New Software for Large Dense Symmetric Generalized Eigenvalue Problems Using Secondary Storage," (with R. Grimes), Journal of Computational Physics, Volume 77, Number 1, pp. 270-275, 1988.

14. "Bisection Is Not Optimal on Vector Processors," SIAM J. Sci. Stat. Computing., Vol. 10, No. 1, pp. 205-209, 1989.

15. "Floating Point Arithmetic in Future Supercomputers," (with D. Bailey, J. Barton, and M. Fouts), pp. 86-90, Int. J. Supercomputer Applications, Vol. 3, No. 3, 1989.

16. "A New Algorithm for Finding a Pseudo-Peripheral Node in a Graph," (with R. Grimes and D. Pierce), SIAM J. Mat. Theory and Appl., Vol. 11, No. 2, pp. 323-334, 1990.

17. "Partitioning Sparse Matrices with Eigenvectors of Graphs," (with A. Pothen and K. Paul Liou), SIAM J. Mat. Theory and Appl., Vol. 11, No. 3, pp. 430-452, 1990.

18. "Using Strassen's Algorithm to Accelerate the Solution of Linear Systems," (with D. Bailey and K. Lee), The Journal of Supercomputing, 4, 357-371, 1990.

19. "Partitioning of Unstructured Problems for Parallel Processing," Computing Systems in Engineering, Vol. 2, Number 2/3, pp. 135-148, 1991.

20. "The NAS Parallel Benchmarks," (with D. Bailey, E. Barszcz, J. Barton, D. Browning, R. Carter, L. Dagum, R. Fatoohi, P. Frederickson, T. Lasinski, R. Schreiber, V. Venkatakrishnan, and S. Weeratunga), International Journal of

Supercomputer Applications 5, No. 3, 63-73, 1991 (revised in 1994).

21. "A MIMD Implementation of a Parallel Euler Solver for Unstructured Grids," (with V. Venkatakrishnan and T. Barth), the Journal of Supercomputing 9, No. 2, 117-127, 1992.

22. "1992 Gordon Bell Prize Winners," (with A. Karp and K. Miura), IEEE Computer, Vol. 26, No. 1, January 1993, pages 77-82.

23. "NAS Parallel Benchmark Results," (with D. Bailey, E. Barszcz, and L. Dagum), IEEE J. Parallel and Distributed Technology, Vol. 1, No. 1, February 1993, pg. 43 - 51.

24. "Experience in Using SIMD and MIMD Parallelism for Computational Fluid Dynamics," (with Leonardo Dagum), Applied Numerical Mathematics 12, 1993, 431-442.

25. "A Shifted Block Lanczos Algorithm for Solving Sparse Symmetric Generalized Eigenproblems," (with R. Grimes and J. Lewis), SIAM J. on Matrix Analysis and Applications, Vol. 15, No. 1, 1994, pages 228-272.

26. "1993 Gordon Bell Prize Winners," (with A. Karp and D. Heller), IEEE Computer, Vol. 27, No. 1, January 1994, pages 69-75.

27. "A Fast Multilevel Implementation of Recursive Spectral Bisection for Partitioning Unstructured Problems," (with S. Barnard), Concurrency: Practice and Experience, Vol. 6, No. 2. pg. 101-117, April 1994.

28. "TOP/DOMDEC: A Software Tool for Mesh Partitioning and Parallel Processing," (with C. Farhat and S. Lanteri), Computing Systems in Engineering, Vol. 6, No. 2, pages 13-26, February 1995.

29. "Supercomputing in the US in 1994: An Analysis on the Basis of the TOP500, Supercomputer," Vol. 9, No. 2/3, pages 21-30, June 1995.

30. "Amdahl's Law and the Statistical Content of the NAS Parallel Benchmarks," (with Erich Strohmaier), Supercomputer, Vol. 9, No. 4, pages 75-86, September 1995.

31. "A Spectral Algorithm for Envelope Reduction of Sparse Matrices," (with S. Barnard and A. Pothen), J. Num. Lin. Algebra with Applications, Vol. 2, No. 4, pages 317-334, 1995.

32. "How Good Is Recursive Bisection," (with Shang-Hua Teng), SIAM Journal on Scientific Computing Volume 18, No. 5, pp. 1436-1445, 1997.

33. "A Fast Poisson Solver for the Finite Difference Solution of the Incompressible Navier-Stokes Equations," (with Gene H. Golub, Lan Chieh Huang, and Wei-Pai Tang), SIAM Journal on Scientific Computing, Volume 19, Number 5, pp. 1606-1624, 1998.

34. "HARP: A Dynamic Spectral Partitioner," (with A. Sohn and R. Biswas), Journal of Parallel and Distributed Computing 50, April 1998, pp. 88-103.

35. "An MPI Implementation of the SPAI Preconditioner on the T3E," (with Stephen T. Barnard and Luis Bernardo), Int. J. of Supercomputer Applications, 13, No. 2, pg. 107-123, 1999.

36. "Unconstrained Energy Functionals for Electronic Structure Calculations," Pfrommer, B.G.; Demmel, J.; Simon, H., Journal of Computational Physics, 20 Mar. 1999, Vol. 150 (no. 1):287-98.

37. "The Marketplace of High-Performance Computing," (with Eric Strohmaier, Jack J. Dongarra, and Hans W. Meuer), Parallel Computing 25, 1517-1544 (1999).

38. "On Updating Problems in Latent Semantic Indexing," Hongyuan Zha and H. Simon. SIAM Journal of Scientific Computing, pp. 782-791, Vol. 21, 1999.

39. "Thick-Restart Lanczos Method for Electronic Structure Calculations," (with Kesheng Wu, Andrew Canning, and Lin-Wang Wang), Journal of Computational Physics, 154:156-173, 1999.

40. "A Parallel Lanczos Method for Symmetric Generalized Eigenvalue Problems," (with Kesheng Wu), Computing and Visualization in Science, 2:37-46 (1999).

41. "Low Rank Matrix Approximation Using the Lanczos Bidiagonalization Process," Horst D. Simon and Hongyuan Zha, SIAM Journal of Scientific Computing. 21:2257-2274, 2000.

42. "Thick-Restart Lanczos Method for Large Symmetric Eigenvalue Problems," (with Kesheng Wu), SIAM. J. Matrix Anal. Appl. Vol. 22, No. 2, pp. 602-616, 2001.

43. "Low-Rank Approximations with Sparse Factors I: Basic Algorithms and Error Analysis," Zhenyue Zhang, Hongyuan Zha and Horst Simon. SIAM Journal of Matrix Analysis and Applications, 23: pp. 706-727, 2002.

44. "Web Document Clustering Using Hyperlink Structures," Xiaofeng He, Hongyuan Zha, Chris Ding and Horst Simon. Computational Statistics and Data Analysis, 41:19-45, 2002.

45. "Future Directions in Scientific Supercomputing for Computational Physics," (with C. William McCurdy, William T. C. Kramer, Robert F. Lucas, and David H. Bailey), Computer Physics Communications 147 (2002), pp. 34-39.

46. "NERSC 'Visualization Greenbook': Future Visualization Needs of the DOE Computational Science Community Hosted at NERSC," (with Bernd Hamann, E. Wes Bethel, Juan Meza), International Journal of High Performance Computing Applications, Vol. 17, Number 2, Summer 2003, pg. 97-124.

47. "Analysis of Hubs and Authorities on the Web," Chris H.Q. Ding, Hongyuan Zha, Xiaofeng He, Parry Husbands and Horst Simon, SIAM Review, Vol. 46, No. 2, June 2004.

48. "Low-Rank Approximations with Sparse Factors II: Penalized Methods with Discrete Newton-Like Iterations," (with Zhenyue Zhang and Hongyuan Zha), SIAM Journal of Matrix Analysis and Applications, 25 (4) (2004), pp. 901-920.

49. "Recent Trends in the Marketplace of High Performance Computing," with Erich Strohmaier, Jack Dongarra, and Hans Meuer, Parallel Computing 31, March-April 2005, pages 261-273.

50. "Science-Driven System Architecture: A New Process for Leadership Class Computing," Horst Simon, William Kramer, William Saphir, John Shalf, David Bailey, Leonid Oliker, Michael Banda, C. William McCurdy, John Hules, Andrew Canning, Marc Day, Philip Colella, David Serafini, Michael Wehner and Peter Nugent, Journal of the Earth Simulator, Vol. 2, March 2005.

51. "Term Norm Distribution and Its Effects on Latent Semantic Indexing," Parry Husbands, Horst Simon, and Chris Ding. Information Processing and Management, Vol. 41, pp. 777-787, 2005.

52. "High Performance Computing. Clusters, Constellations, MPPs, and Future Directions", Jack Dongarra, Thomas Sterling, Horst Simon and Erich Strohmaier, Computing in Science and Engineering 7, No. 2, pp. 51-59, March/April 2005.

53. "Performance of Ultra-Scale Applications on Leading Vector and Scalar HPC Platforms," with Leonid Oliker, Andrew Canning, Jonathan Carter, John Shalf, Stephane Etier, David Parks, Shigemune Kitawaki, Yoshinori Tsuda, and Tetsuya Sato, Journal of the Earth Simulator 3, pp. 39 -51, September 2005.

Conference Proceedings, Book Chapters, and Other Publication

1. "Incomplete LU Preconditioners for Conjugate-Gradient-Type Iterative Methods," Proceedings of the Eighth SPE Symposium on Reservoir Simulation, Dallas, Texas, February 1985.

2. "Shifted Block Lanczos Algorithm in MSC/NASTRAN," (with R. Grimes, J. Lewis, L. Komzsik, and D. Scott), Proceedings of the MSC/NASTRAN User's Conference, Los Angeles, California, March 1985.

3. "From Slide Rules to Supercomputers," (with A. Erisman), Datamation 10, pp. 88-94, 1986.

4. "Experience in Solving Large Eigenvalue Problems on the Cray X-MP," (with R. G. Grimes and J. G. Lewis), Proceedings of the Cray Users Group Meeting, Garmisch, West Germany, 1986.

5. "The Impact of Hardware Gather/Scatter on Sparse Gaussian Elimination," (with J.G. Lewis), pp. 366-369 in "Proceedings of the 1986 Int. Conf. on Parallel Processing," ed. by K. Hwang, S. Jacobs, and E. Swartzlander, IEEE Computer Society, Los Angeles, California, 1986.

6. "Eigenvalue Problems and Algorithms in Structural Engineering (with R.G. Grimes and J.G. Lewis), pp. 81-93 in Proceedings of the IBM Europe Workshop on Large Scale Eigenvalue Problems, edited by J. Cullum and R. Willoughby, North-Holland, 1986.

7. "Supercomputer Performance Evaluation: Benchmarking Applications on Supercomputers," (with K. W. Neves), pp. 374-379 in Proceedings of the Second International Conference on Supercomputing, Santa Clara, California, 1987.

8. "Dynamic Analysis with the Lanczos Algorithm on the SCS-40," (with R. G. Grimes), pp. 110-118 in Proceedings of the Second International Conference on Supercomputing, Santa Clara, California, 1987.

9. "Evaluation of Orderings for Unsymmetric Sparse Matrices," (with A.M. Erisman, R.G. Grimes, J.G. Lewis, and W.G. Poole, Jr.), pp. 600-624 in SIAM J. Sci. Stat. Comput., Vol. 8, No. 4, July 1987.

10. "Recent Progress in Sparse Matrix Methods for Large Linear Systems," (with C. Ashcraft, R. Grimes, B. Peyton, and J. Lewis), pp. 235-254 in Proceedings of the Third International Symposium on Science and Engineering on Cray Supercomputers, Minneapolis, Minnesota, 1987.

11. "Solution of Large Dense Generalized Eigenvalue Problems on the Cray X-MP with SSD," (with R. Grimes), pp. 426-430, Proceedings of the Third International

Conference on Supercomputing, edited by L.P. and S.I. Kartashev, International Supercomputing Institute, St. Petersburg, 1988.

12. "Sparse Matrix Algorithms," Workshop Report, pp. 11-12, SuperComputing, Summer 1988.

13. "Sparse Matrix Algorithms for Supercomputers," Tutorial Notes, IEEE, Supercomputing '88, Orlando, Florida, 1988.

14. "Special Report: 1988 Gordon Bell Prize," (by Jim Browne, Jack Dongarra, Ken Kennedy, and David Kuck), IEEE Software, May 1989, pp. 78-85, (extensive discussion of research work which led to the Gordon Bell Prize).

15. "Team from Boeing/Cray Sweeps the Second Gordon Bell Award," SIAM News, Vol. 22, Number 3, May 1989; (also appeared as "Widely Based Collaborative Effort Wins 1988 Gordon Bell Award," Supercomputing Review, April 1989, pp.16-18).

16. "Floating Point Arithmetic in Future Supercomputers," International Journal of Supercomputer Applications, Vol. 3, No. 3, Fall 1989, pp. 86-90.

17. "Are Highly Parallel System Ready for Prime Time?" (with C. Levit, K. Misegades, G. Montry, A. Patera, and J. Rattner), Int. J. of

18. "Performance Results on the Intel Touchstone Gamma Prototype," (with D. Bailey, E. Barsczc, R. Fatoohi, and S. Weeratunga), The Fifth Distributed Memory Computing Conference, Proceedings, Volume II, edited by David Walker and Quentin Stout, pp. 1236-1246, IEEE Computer Science Press, Los Alamitos, 1990.

19. "A MIMD Implementation of an Unstructured Euler Solver," (with V. Venkatakrishnan and T. Barth), Proceedings of the Fifth SIAM Conference on Parallel Processing, Houston, Texas, March 1991.

20. "Massive Parallelism at NAS, Proceedings of the Supercomputing USA Pacific 1991 Conference," pp. 100-103, Meridian Pacific Group, Santa Clara, California, June 1991.

21. "The NAS Parallel Benchmarks: Overview and Early Results," (with D. Bailey, E. Barszcz, J. Barton, D. Browning, R. Carter, L. Dagum, R. Fatoohi, P. Frederickson, T. Lasinski, R. Schreiber, V. Venkatakrishnan, and S. Weeratunga), Proceedings of Supercomputing '91, Albuquerque, New Mexico, pp. 158-165, November 1991.

22. "Gordon Bell Prize Lectures," (with J. J. Dongarra, A. Karp, and K. Miura), Proceedings of Supercomputing '91, Albuquerque, New Mexico, pp. 328-337, November 1991.

23. "Aerodynamic Simulation on Massively Parallel Systems," (with J. Häuser), Proceedings of Parallel Computational Fluid Dynamics '91, pages 207-225, Elsevier North Holland, 1992.

24. "Parallel Preconditioning and Approximate Inverses on the Connection Machine," (with M. Grote), Proceedings of the Scalable High Performance Computing Conference (SHPCC) 1992, Williamsburg, Virginia, April 1992, IEEE Computer Science Press, 1992, pp. 76-83.

25. "Experience with Massive Parallelism for CFD Applications at NASA Ames Research Center," Supercomputer 92, edited by H.-W. Meuer, pages 122-136, Springer Verlag, Berlin, Germany, 1992.

26. "The Implementation of the U.S. High Performance Computing and

Communications Program," (with C. Bischof), Supercomputer 92, edited by H.-W. Meuer, pages 198-212, Springer Verlag, 1992.

27. "Future Directions in Computing and CFD," (with F. Ron Bailey), Proceedings, AIAA 10th Applied Aerodynamics Conference, Palo Alto, California, Paper AIAA 92-2734, 1992.

28. "Parallel CFD: Current Status and Future Requirements," (with W. Van Dalsem and Leonardo Dagum), pages 1-28, in Parallel CFD: Implementations and Results Using Parallel Computers, MIT Press, Cambridge, Massachusetts, 1992.

29. "Towards the Teraflops Capability for CFD," (with R. Schreiber), pages 331- 360, in Parallel CFD: Implementations and Results Using Parallel Computers, MIT Press, Cambridge, Massachusetts, 1992.

30. "Towards a Fast Implementation of Spectral Nested Dissection," (with A. Pothen, L. Wang, and S. Barnard), Proceedings of Supercomputing '92, pages 42-51, IEEE Computer Society Press, Washington, D.C., 1992.

31. "Gordon Bell Prize Lectures 1992," (with A. Karp and K. Miura), Proceedings of Supercomputing '92, pages 536-538, IEEE Computer Society Press, Washington, D.C., 1992.

32. "Gordon Bell Prize 1992," (with A. Karp and K. Miura), IEEE Computer, 26, 1, 77-82, January, 1993.

33. "A New Approach to Construction of Efficient Iterative Schemes for Massively Parallel Applications: Variable Block CG and BiCG Methods and Variable Block Arnoldi Procedure," (with A. Yeremin), Proc. of the 6th SIAM Conference on Parallel Proc. for Scientific Computing, ed. by R. Sincovec et al., SIAM Philadelphia, pages 57-60, 1993.

34. "Parallel Preconditioning and Approximate Inverses on the Connection Machine," (with M. Grote), Proc. of the 6th SIAM Conference on Parallel Proc. for Scientific Computing, ed. by R. Sincovec et al., SIAM Philadelphia, pages 519- 523, 1993.

35. "A Fast Multilevel Implementation of Recursive Spectral Bisection for Partitioning Unstructured Problems," (with S. Barnard), Proc. of the 6th SIAM Conference on Parallel Proc. for Scientific Computing, ed. by R. Sincovec et al., SIAM Philadelphia, pages 711-718, 1993.

36. "Features of Architecture Independent CFD Codes," (with J. Häuser and H.G. Paap), Proceedings of Parallel CFD '92, Elsevier Science Publishers, pages 199-213, 1993.

37. "Experience in using SIMD and MIMD Parallelism for Computational Fluid Dynamics," (with Leonardo Dagum), Applied Numberical Mathematics 12, (1993), pages 431-442.

38. "Enhancing Applications Performance on Intel Paragon through Dynamic Memory Allocation," (with Subhash Saini), Proceedings of the Scalable Parallel Libraries Conference, Mississippi State Univ., pages 232-239, IEEE Computer Society Press, Los Alamitos, California, 1993.

39. "Applications Performance on Intel Paragon XP/S-15," (with Subhash Saini), Proceedings of HPCN '94: 493-498, Munich, Germany, April 1994, Springer Verlag.

40. "NAS Parallel Benchmark Results 03-94," (with D. Bailey, E. Barszcz, and L. Dagum), Proceedings of the SHPCC '94 Conference, Knoxville, TN, May 1994,

pages 111-120, IEEE Computer Society Press, Los Alamitos, California, 1994.

41. "The NAS Parallel Benchmarks: Review and Current Results," (with D. Bailey, E. Barszcz, and L. Dagum), pages 164-182, Supercomputer '94, Editor H.-W. Meuer, K. G. Saur Verlag, Munich, New Providence, London, Paris, 1994.

42. "Erleben die Vectorrechner eine Renaissance?" (with J. Almond, M. Heib, S. Jarre, E. Krause, R. Rühle, and H.- M. Wacker, pages 218-238, Supercomputer '94, Editor H.-W. Meuer, K. G. Saur Verlag, Munich, New Providence, London, Paris, 1994.

43. "High Performance Computing in the U.S.," pages 117-148, Chapter 6 in TOP500 Report 1993, edited by J. J. Dongarra, H. Meuer, and E. Strohmeier, University of Mannheim, 1994.

44. "Applications Performance under OSF1/AD and SUNMOS on Intel Paragon XP/S-15," (with Subhash Saini), Proceedings of Supercomputing '94, Washington D.C., November 1994, IEEE Press, pages 580-589.

45. "1994 Gordon Bell Prize Winners," (with Alan H. Karp, Michael Heath, and Don Heller), IEEE Computer, Vol. 28, No. 1, February 1995.

46. "Seven Years of Parallel Computing at NAS (1987-1994): What Have We Learned?" Proceedings of 33rd Aerospace Sciences Meeting, Reno, Nevada, January 9-12, 1995, AIAA Paper 95-0219, American Institute of Aeronautics and Astronautics, Washington, D.C., 1995.

47. "Dynamic Load Balancing for Finite Element Calculations on Parallel Computers," (with E. Pramono and A. Sohn), Proc. of the 7th SIAM Conference on Parallel Processing, pages 599-610, SIAM Philadelphia, 1995.

48. "A Parallel Implementation of Multilevel Recursive Spectral Bisection for Application to Adaptive Unstructured Meshes," (with S. Barnard), Proc. of the 7th SIAM Conference on Parallel Processing, pages 627-632, SIAM Philadelphia, 1995.

49. "High Performance Computing in the U.S. in 1994," pages 21-31, Supercomputer, Volume 11, Number 2/3, June 1995.

50. "High Performance Computing in the U.S. in 1995," (with J. Dongarra), pages 16-23, Supercomputer, Volume 12, Number 1, November 1995.

51. "The TOP25 Supercomputer Sites," (with Wolfgang Bez), pages 38-48, Supercomputer, Volume 12, Number 1, November 1995.

52. "Changing Technologies for HPC," (with J. Dongarra, H. Meuer, and E. Strohmaier), Proceedings of HPCN Europe, Brussels, Belgium, 1996.

53. "Impact of Load Balancing on Unstructured Adaptive Grid Computations for Distributed-Memory Multiprocessors," (with R. Biswas, and A. Sohn), in Proceedings of the Eighth IEEE Symposium on Parallel and Distributed Processing, New Orleans, Louisiana, October 1996, pp.26-33.

54. "1996: The Industrial Usage of HPC Systems Takes Off," (with Hans W. Meuer and Erich Strohmaier), Primeur Live, Amsterdam, Netherlands, November 1996.

55. "Industrial Application Areas of High-Performance Computing," (with Jack J. Dongarra, Hans W. Meuer, and Erich Strohmaier), Primeur Live, Amsterdam, Netherlands, November 1996.

56. "The TOP25 Supercomputer Sites, Primeur Live," Amsterdam, Netherlands, November 1996.

57. "Theme Editors' Introduction: Advancing Interactive Visualization and Computational Steering," (with Jim X. Chen and David Rine), IEEE Computational Science and Engineering, Vol. 3, No. 4, December 1996, pp. 13-17.

58. "Unstructured Adaptive Grid Computations on an Array of SMPs," (with R. Biswas, I. Pramanick, and A. Sohn), pages 140-147, in Parallel Computational Fluid Dynamics: Algorithms and Results Using Advanced Computers, Elsevier Science B.V., Amsterdam, 1997.

59. "Conjugate Gradient Based Electronic Structure Calculations on the Cray T3E and SGI PowerChallenge," (with Bernd Pfrommer and Steven Louie), Proc. of the 8th SIAM Conference on Parallel Processing, Minneapolis, March 1997, SIAM Philadelphia, 1997.

60. "High Performance Computing in the U.S. in 1996," (with Jack Dongarra), pp. 31-40, Supercomputer 1997, edited by H.-W. Meuer, K. G.Saur Verlag, Munich, 1997.

61. "Evolution of the HPC Market," (with Strohmeier, Dongarra, and Meuer), pp. 27-44, Advances in High Performance Computing, edited by Grandinetti et al., Springer Verlag, Heidelberg, 1997.

62. "HARP: A Fast Dynamic Spectral Partitioner," (with R. Biswas and A. Sohn), Proc. ACM Symposium on Parallel Architectures and Algorithms, Newport, Rhode Island , June 1997, pp. 43-52.

63. "Site Report: Reinventing the Supercomputer Center at NERSC," IEEE Computational Science and Engineering," Vol. 4, No. 3, July-September 1997 (HTML and PDF).

64. "The Recent Revolution in High Performance Computing," MRS Bulletin, Vol. 22, No. 10, October 1997.

65. "Large-Scale SVD and Subspace-Based Methods for Information Retrieval," Proc. Irregular '98, Lecture Notes in Computer Science, Springer-Verlag (with Hongyuan Zha and Osni Marques), pg. 29-42, 1998.

66. "Thick-restart Lanczos Method for Symmetric Eigenvalue Problems," (with Kesheng Wu), in Proceedings of 5th International Symposium on Solving Irregularly Structured Problems in Parallel, Irregular '98", Lecture Notes in Computer Science, Vol. 1457, pg. 43-55, 1998.

67. "S-HARP: A Parallel Dynamic Spectral Partitioner," (with Andrew Sohn) in Proceedings of 5th International Symposium on Solving Irregularly Structured Problems in Parallel, Irregular '98, Lecture Notes in Computer Science, Vol. 1457, pg. 376-385, 1998.

68. "The Future of Industrial Parallel Computing," (with M. Heroux and A. E. Koniges), Chapter in Industrial Strength Parallel Computing, M. Kauffman, A. E. Koniges, et al., 1999.

69. "A New Lanczos Method for Electronic Structure Calculations," (with K. Wu and A. Canning), Proceedings SC98, IEEE, Orlando, Florida, 1998.

70. "An Evaluation of the Parallel Shift-and-Invert Lanczos Method," (with K. Wu), Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications, Las Vegas, Nevada, June 28-July 1, pg. 2913-2919, 1999.

71. "Building the Teraflops/Petabytes Production Supercomputing Center," (with William T. C. Kramer and Robert F. Lucas), Proceedings of EuroPar '99, Toulouse, France, September 1999, Springer Lecture Notes in Computer Science Vol. 1685, 1999.

72. "High Performance Computing Today," (with Jack Dongarra, Hans Meuer, and Erich Strohmaier), Proceedings of FOMMS 2000: Foundations of Molecular Modeling and Simulation, Keystone, Colorado, July 23-28, 2000.

73. "On the Use of Singular Value Decomposition for Text Retrieval," (with Parry 0usbands and Chris Ding), Proceedings of 1st SIAM Computational Information Retrieval Workshop, October 2000. Raleigh, North Carolina, October 2000.

74. "A Min-Max Cut Algorithm for Graph Partitioning and Data Clustering," (with Chris Ding, Xiaofeng He, Hongyuan Zha, and Ming Gu), Proc. 1st IEEE Int'l Conf. Data Mining. San Jose, California, pp.107-114, 2001.

75. "Automatic Topic Identification Using Webpage Clustering," (with Xiaofeng He, Chris H.Q. Ding, and Hongyuan Zha), Proc. 1st IEEE Int'l Conf. Data Mining. San Jose, California, pp.195-202, 2001.

76. "Bipartite Graph Partitioning and Data Clustering," (with Hongyuan Zha, Xiaofeng He, Chris Ding, and Ming Gu), Proc. ACM 10th Int'l Conf. Information and Knowledge Management (CIKM 2001), pp. 25-31, Atlanta, Georgia, USA, 2001.

77. "Biannual TOP-500 Computer Lists Track Changing Environments for Scientific Computing," (with Jack Dongarra, Hans Meuer, and Erich Strohmaier), SIAM News, Vol. 34, No. 9. November 2001, pg. 1 ff.

78. "Spectral Relaxation for K-Means Clustering," Hongyuan Zha, Chris Ding, Ming Gu, Xiaofeng He and Horst Simon. Advances in Neural Information Processing Systems 14, pp. 1057-1064, eds. T. Dietterich, S. Becker, Z. Ghahramani, MIT Press (2002).

79. "Unsupervised Learning: Self-Aggregation in Scaled Principal Component Space," C. Ding, X. He, Hongyuan Zha, and H. Simon. Principles of Data Mining and Knowledge Discovery, 6th European Conference, PKDD 2002, T. Elomaa, H. Mannila, H. Toivonen eds., Lecture Notes in Artificial Intelligence, Vol. 2431, pp. 112-124, 2002.

80. "PageRank, HITS and a Unified Framework for Link Analysis," C. Ding, X. He, P. Husbands, Hongyuan Zha and H. Simon. Proceedings of the 25th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval, pp. 353-354, August 11-15, 2002, in Tampere, Finland.

81. "Recent Trends in the Marketplace of High Performance Computing," with Erich Strohmaier, Jack Dongarra, and Hans Meuer, Technology Watch Quarterly, Spring 2005, pp. 12-17.

82. "On the equivalence of nonnegative matrix factorization and spectral clustering," Chris Ding, Xiaofeng He, and Horst Simon. Proc. SIAM Int'l Conf. Data Mining, April 2005.

83. "Towards Petascale Computing for Science," ICCSE 2005, International Conference on Computational Science and Engineering, Istanbul'05, June 27-30, 2005, Istanbul, Turkey.

84. "On the Equivalence of Non-Negative Lagrangian Relaxation and K-Means Spectral Clustering," with Chris Ding and Xiaofeng He, and Rong Jin, LBNL-59662, to appear in the Proceedings of the 16th European Conference on Machine Learning (ECML'05), Oct 2005.

85. "Wirklich Intelligente Rechner" ("Really Intelligent Computers" - in German), Spektrum der Wissenschaften, to appear (2006)

Reports

1. "Numerical Solution of Parameter-Nonlinear Eigenvalue Problems," TU Berlin, 1978 (Diplomarbeit).

2. "Solving Ax = b using the Lanczos Algorithm with Selective Orthogonalization," (with B. Parlett), University of California Berkeley, 1980.

3. "The Lanczos Algorithm for Solving Symmetric Linear Systems," Report PAM-78, University of California Berkeley, 1982 (Ph.D. thesis).

4. "Bounds for the Dominant Eigenvector of a Graph," Report Dept. of Appl. Math., SUNY Stony Brook, 1982.

5. "Banded Preconditioning for the Solution of Symmetric Positive Definite Linear Systems," (with B. Nour-Omid), Report Dept. of Appl. Math., SUNY Stony Brook, 1982.

6. "EISPACK User's Guide," Report MM-LR-29, Boeing Computer Services, October 1983.

7. "Numerical Experience with the Spectral Transformation Lanczos Method," (with J.G. Lewis), Report MM-TR-16, Boeing Computer Services, 1984.

8. "The Reduction to Tridiagonal and Hessenberg Form on Vector Machines," Report MM-TR-15, Boeing Computer Services, 1984.

9. "Vectorization and the Cost of Scientific Software," Report MM-LR-31, Boeing Computer Services, 1984.

10. "Supercomputer Vectorization and Optimization Guide," Report MM-TR-22, Boeing Computer Services, October 1984.

11. "User Guide for ILUPACK: Incomplete LU Factorization and Iterative Methods," Report ETA-LR-38, Boeing Computer Services, January1985.

12. "A Block Shifted Lanczos Algorithm for Eigenvalue Problems in Structural Engineering," (with R.G. Grimes and J.G. Lewis), Report ETA-TR-39, Boeing Computer Services, 1986.

13. "Scientific Summary Report to the National Science Foundation," Supercomputer Summer Institutes 1986, (with M. Markley, M. Bieterman, and R. Melvin), ETA-TR-42, December 1986.

14. "Subroutines for the Out-of-Core Solution of Large Dense Symmetric Generalized Eigenvalue Problems," (with R. G. Grimes), Report ETA-TR-54, May 1987.

15. "Sparse Matrix Factorization at 1.68 GFLOPS," (with Phuong Vu and Chao Yang), RNR Technical Report RNR-89-002, April 1989.

16. "NAS Parallel Benchmark Results," (with D. Bailey, E. Barszcz, and L. Dagum),

RNR-092-002, NASA Ames Research Center, Moffett Field, California, January 1992.

17. "The NAS Parallel Benchmarks," (with D. Bailey, J. Barton, and T. Lasinski) NASA Ames Research Center, Moffett Field, California, NASA Technical Memorandum 103863, July 1993.

18. "NAS Parallel Benchmark Results 10-93," (with D. Bailey, E. Barszcz, and L. Dagum), RNR-093-016, NASA Ames Research Center, Moffett Field, California, October 1993.

19. "High Performance Computing: Architecture, Software, Algorithms," RNR-093-018, NASA Ames Research Center, Moffett Field, California, December 1993.

20. "Parallel Sparse Cholesky Factorization with Spectral Nested Dissection Ordering," (with Alex Pothen, Edward Rothberg, and Lie Wang), Report RNR-94-011, NASA Ames Research Center, Moffett Field, California, May 1994.

21. "High Performance Programming Using Explicit Shared Memory Model on the Cray T3D," (with Subhash Saini), RNR-094-012, NASA Ames Research Center, Moffett Field, California, May 1994.

22. "NAS Parallel Benchmark Results 10-94," (with D. Bailey, E. Barszcz, and L. Dagum), RNR-094-021, NASA Ames Research Center, Moffett Field, California, October 1994.

23. "A Fast Poisson Solver for Unsteady Incompressible Navier-Stokes Equations on the Half-Staggered Grid," (with Gene Golub, L.-C. Huang, and Wei-Pai Tang), November 1994.

24. "A Fast Solver for Incompressible Navier-Stokes Equations with Finite Difference Methods," (with Gene H. Golub, Lan Chieh Huang, and Wei-Pai Tang), Report SCCM-95-06, Stanford University, Stanford, California 1995.

25. "Spectral Ordering Techniques for Incomplete LU Preconditioners for CG methods," (with Simon Clift and Wei-Pai Tang), NASA RIACS Technical Report 95.20, September 1995, submitted to IMA Journal of Numerical Analysis.

26. "A Parallel Lanczos Method for Symmetric Generalized Eigenvalue Problems," (with Kesheng Wu), Report LBNL-41284, December 1997.

27. "S-HARP: A Parallel Dynamic Spectral Partitioner," (with Andrew Sohn), Report LBNL-41348, January 1998.

28. "Thick-Restart Lanczos Method for Electronic Structure Calculations," (with Kesheng Wu, Andrew Canning, and Lin Wang-Wang), Report LBNL-42917, February 1999.

29. "Parallel Efficiency of the Lanczos Method for Eigenvalue Problems," (with Kesheng Wu), Report LBNL-42828. Proceedings of the Ninth SIAM Conference on Parallel Processing 1999.

30. "TRLAN User Guide," (with Kesheng Wu), Report LBNL-42953, March 1999.

31. "Dynamic Restarting Schemes for Eigenvalue Problems," (with Kesheng Wu), Report LBNL-42982, March 1999.

32. "An Evaluation of Parallel Shift-and-Invert Lanczos Method," (with Kesheng Wu), Report LBNL-43178.

33. "Computational Biology and High Performance Computing," (with Manfred Zorn,

Teresa Head-Gordon, Adam Arkin, and Brian Shoichet), Report LBNL-44460, Presented at SC99, Portland, OR, and published in the Proceedings, October 1999.

34. "[Computational Biology and High Performance Computing 2000](#)," (with Manfred D. Zorn, Sylvia J. Spengler, Brian K. Shoichet, Craig Stewart, Inna L. Dubchak, and Adam P. Arkin), Report LBNL-47001, October 2000.

35. "[Computational Biology and High Performance Computing 2000](#)," (with Manfred D. Zorn, Sylvia J. Spengler, Brian K. Shoichet, Craig Stewart, Inna L. Dubchak, and Adam P. Arkin), Report LBNL-47001, October 2000.

36. "[Creating Science-Driven Computer Architecture: A New Path to Scientific Leadership](#)," (with C. William McCurdy, Rick Stevens, William Kramer, David Bailey, William Johnston, Charlie Catlett, Rusty Lusk, Thomas Morgan, Juan Meza, Michael Banda, James Leighton, and John Hules), Report LBNL Pub-5483, October 2002.

37. "[Creating Science-Driven Computer Architecture: A New Path to Scientific Leadership](#)," (with C. William McCurdy, William T.C. Kramer, Rick Stevens, Mike McCoy, Mark Seager, Thomas Zacharia, Jeff Nichols, Ray Bair, Scott Studham, William Camp, Robert Leland, John Morrison, Bill Feiereisen), Report LBNL-52713, May 2003.

38. "[Link Analysis: Hubs and Authorities on the World Wide Web](#)," (with Chris H.Q. Ding, Hongyuan Zha, Xiaofeng He, Parry Husbands), Report LBNL-47847, revised July 2003.

39. "[A MinMax Cut Spectral Method for Data Clustering and Graph Partitioning](#)," (with Chris Ding, Xiaofeng He, Hongyuan Zha and Ming Gu), Report LBNL-54111, December 2003, (submitted to Computational Statistics and Data Analysis).

40. Evaluation of Leading Scalar and Vector Architectures for Scientific Computations," Horst Simon, Leonid Oliker, Andrew Canning, Jonathan Carter, Stephane Ethier and John Shalf, in Annual Report of the Earth Simulator Center, April 2003-March 2004, Yokohama, Japan, JAMSTEC, 2004.

41. "[Science Driven Computing: NERSC's Plan for 2006-2010](#)", with W. T. C. Kramer, David H. Bailey, Michael J. Banda, E. Wes Bethel, Jonathon T. Carter, James M. Craw, William J. Fortney, John A. Hules, Nancy L. Meyer, Juan C. Meza, Esmond G. Ng, Lynn E. Rippe, William C. Saphir, Francesca Verdier, Howard A. Walter, Katherine A. Yelick, Report LBNL-57582, May 2005.

42. Spectral Clustering of US Supreme Court Justices, with Chris Ding, October 2005.

43. "[Enabling Computational Science and Engineering at Berkeley](#)," Mark A. Richards and Horst D.Simon, LBNL/PUB 947, December 2005.

Presentations

1. "The Lanczos Algorithm with Partial Reorthogonalization," SIAM Conference on Applied Linear Algebra, Raleigh, North Carolina, April 1982.

2. "The Lanczos Algorithm for the Solution of Nonsymmetric Linear Systems," Sparse Matrix Symposium, Fairfield Glade, Tennessee, October 1982.

3. "Banded Preconditioning," (co-authored with and presented by B. Nour-Omid),

Sparse Matrix Symposium, Fairfield Glade, TN, October 1982.

4. "Eigenvalue Computations on the CRAY-1S," SIAM Conference on Parallel Processing for Scientific Computing, Norfolk, Virginia, November 1983.

5. "A Nested Dissection Multifrontal Method for Large 2-D Grids," (given by J. G. Lewis, with R. G. Grimes), Gatlinburg IX Conference on Numerical Linear Algebra, Waterloo, Ontario, 1984 and SIAM Summer Meeting, Seattle, Washington, 1984.

6. "Numerical Experience with the Spectral Transformation Lanczos Method," (with J. G. Lewis), Gatlinburg IX Conference on Numerical Linear Algebra, Waterloo, Ontario, 1984 and SIAM Summer Meeting, Seattle, Washington, 1984.

7. "Two Conjugate Gradient Type Methods for Sparse Unsymmetric Linear Equations," (with M. A. Saunders and E. L. Yip), Gatlinburg IX Conference on Numerical Linear Algebra, Waterloo, Ontario, 1984; given by E. L. Yip at SIAM Summer Meeting, Seattle, Washington, 1984.

8. "A Nested Dissection Multifrontal Method for Large 2-D Grids," (with R. G. Grimes and J. G. Lewis), Gatlinburg IX Conference on Numerical Linear Algebra, Waterloo, Ontario, 1984, and SIAM Summer Meeting, Seattle, Washington, 1984.

9. "Supercomputing Opportunities in Analysis," SIAM Summer Meeting, Seattle, July 1984, and Computer Needs for Psychology, Workshop of the American Federation of Behavioral, Psychological and Cognitive Sciences (invited speaker), Washington, DC, July 1984.

10. "Supercomputer Vectorization and Optimization," Workshop on Supercomputer Applications in the Life Sciences, Airly, Virginia, December 1984, (invited speaker), and Annual Meeting of the American Mathematical Society, Anaheim, California, January 1985.

11. "Incomplete LU Preconditioners for Conjugate-Gradient-Type Iterative Methods," Eighth SPE Symposium on Reservoir Simulation, Dallas, Texas, February 1985.

12. "Shifted Block Lanczos Algorithm in MSC/NASTRAN," (with R. Grimes, J. Lewis, L. Komzsik, and D. Scott), MSC/NASTRAN User's Conference, Los Angeles, California, March 1985.

13. "Supercomputers: Experience and the Future," 12th Annual ACM SIGUCCPS Computer Center Management Symposium, St. Louis, MO, March 1985.

14. "Platzman's Problem Revisited," (with and presented by J. Lewis), Second SIAM Conference on Applied Linear Algebra, Raleigh, North Carolina, April 1985.

15. "Symmetric Generalized Eigenproblems in Structural Engineering," (with R. G. Grimes, L. Komzsik, J. G. Lewis, and D.S. Scott, given by J.G. Lewis), Second SIAM Conference on Applied Linear Algebra, Raleigh, North Carolina, April 1985.

16. "Advances in Lanczos Eigenextraction Algorithms," (with R. G. Grimes and J. G. Lewis, given by J. G. Lewis), ICES '85 International Conference, Toronto, Ontario, 1985.

17. "Computational Kernels," First RIMSIG (Research in Multiprocessing Special Interest Group) Meeting, Lawrence Livermore National Laboratory, Livermore, California, October 1985.

18. "The Solution of Large Dense Generalized Eigenvalue Problems on the Cray X-

MP/24 with SSD," (with R. Grimes, H. Krakauer, J. Lewis, and S.-H. Wei), Second SIAM Conference on Parallel Processing for Scientific Computing, Norfolk, Virginia, November 1985.

19. "Approximate Inverses: A Family of Naturally Vectorizing Preconditioners," Second SIAM Conference on Parallel Processing for Scientific Computing, Norfolk, Virginia, November 1985.

20. "A Parallel Algorithm for the Symmetric Tridiagonal Eigenvalue Problem," (with and presented by B. Nour-Omid) Second SIAM Conference on Parallel Processing for Scientific Computing, Norfolk, Virginia, November 1985.

21. "The Impact of Hardware Gather/Scatter on Sparse Gaussian Elimination," (with J.G. Lewis) International Conference on Parallel Processing, St. Charles, Illinois, August 1986.

22. "Shifting Strategies for the Lanczos Algorithm," (with J.G. Lewis and R.G. Grimes) First World Congress on Computational Mechanics, Austin, Texas, September 1986.

23. "Experiences in Solving Large Eigenvalue Problems on the Cray X-MP," (given by R.G. Grimes, with J. G. Lewis), Eighteenth Semi- Annual Cray Users Group Meeting, Garmisch, West Germany, October 1986.

24. "Supercomputer Performance Evaluation: Benchmarking Applications on Supercomputers," (with K. W. Neves), Second International Conference on Supercomputing, Santa Clara, California, 1987.

25. Dynamic Analysis with the Lanczos Algorithm on the SCS-40," (with R. G. Grimes), Second International Conference on Supercomputing, Santa Clara, California, 1987.

26. "A w Algorithm for the Tridiagonal Reduction of Unsymmetric Matrices," (with R. G. Grimes), ICIAM Paris, France, June 1987.

27. "High Performance Sparse Cholesky Factorization on Vector Supercomputers," (with C.C. Ashcraft, R.G. Grimes, B.W. Peyton and given by J. G. Lewis), SIAM 35th Anniversary Meeting, Denver, October 1987; Gatlinburg X, Fairfield Glade, Tenn., October 1987.

28. "Two Supernodal Implementations of General Sparse Factorization for Vector Computers," (given by B.W. Peyton, with C.C. Ashcraft, R.G. Grimes and J. G. Lewis), Third SIAM Conference on Parallel Processing for Scientific Computing, Los Angeles, December 1987.

29. "The Lanczos Method for Large Eigenvalue Problems on Supercomputers," (given by D. Scott with R. Grimes and J. Lewis), 6th International Modal Analysis Conference, Orlando, Florida, February 1988.

30. "Development of Highly Vectorized Sparse Solvers for the CRAY X-MP," (given by B. Peyton, with C. Ashcraft, R. Grimes and J. Lewis), Supercomputer Applications of Sparse Matrix Algorithms, Santa Cruz, California, March 1988.

31. "Solution of Large Dense Generalized Eigenvalue Problems on the Cray X-MP with SSD," (with R. G. Grimes), Third International Conference on Supercomputing, Boston, May 1988.

32. "The Solution of Large Sparse Eigenvalue Problems in Structural Engineering

Applications," (with R. Grimes and given by J. Lewis), Third SIAM Conference on Applied Linear Algebra, Madison, Wisconsin, May 1988.

33. "A New Algorithm for Finding Pseudoperipheral Nodes of A Graph," (with R. Grimes and D. Pierce), Fourth SIAM Conference on Discrete Mathematics, San Francisco, June 1988.

34. "Laplacian Matrices, Eigenvectors of Graphs, and Domain Decomposition for Irregular Domains," Workshop on Sparse Matrix Algorithms on the Intel iPSC2, Beaverton, Oregon, September 1988.

35. "Sparse Matrix Algorithms on Supercomputers," (invited tutorial), Supercomputing '88, Orlando, Florida, November 1988.

36. "Partitioning Sparse Matrices with Eigenvectors of Graphs," (with and given by A. Pothen), invited paper, SIAM Symposium on Sparse Matrices, Gleneden Beach, Oregon, May 1989.

37. "A Parallel, Iterative Algorithm for Envelope Reduction," SIAM Symposium on Sparse Matrices, Gleneden Beach, Oregon, May 1989.

38. "Totally Parallel Multilevel Algorithms" (with and given by Paul Frederickson), SIAM Symposium on Sparse Matrices, Gleneden Beach, Oregon, May 1989.

39. "Sparse Matrix Factorization at 1.68 GFLOPS," (with Phuong Vu and Chao Yang), SIAM Symposium on Sparse Matrices, Gleneden Beach, Oregon, May 1989.

40. "Supercomputer Algorithms," (invited speaker), National Center for Supercomputer Applications, Summer Institute, University of Illinois, Champaign, Illinois, June 1989.

41. "Parallel Preconditioning with Approximate Inverses," SIAM Annual Meeting, San Diego, California, July 1989.

42. "Supercomputer Algorithms," (invited speaker), First Australian Supercomputer Summer Institute, CSIRO, Canberra, Australia, September 1989.

43. "Sparse Matrix Algorithms for Supercomputers," (invited speaker), Conference on Modern Numerical Algorithms for Supercomputers, University of Texas, Austin, October 1989.

44. "Large Scale Linear Algebra Algorithms for Supercomputer Applications," (tutorial presentation), Supercomputing '89, Reno, NV, November 1989.

45. "Performance of the DARPA Touchstone Gamma System Prototype Parallel Supercomputer," (with D. Bailey, E. Barszcz, R. Fatoohi, and S. Weeratunga), The Fifth Distributed Memory Computing Conference, Charleston, South Carolina, April 1990.

46. "Parallel CFD at NASA Ames," (with W. van Dalsem), Parallel CFD Conference, Indianapolis , Indiana, May 1990.

47. "Towards the Teraflop: Trends in Parallel Supercomputer Architecture 1990-1993," (with R. Schreiber), SIAM Annual Meeting, Chicago, Illinois, July 1990.

48. "Visualization of Sparse Matrix Algorithms," (invited speaker) IBM Europe Workshop on Sparsity in Scientific Computation, Oberlech, Austria, August 1990.

49. "Partitioning Unstructured Grid for Parallel Processing, SIAM Conference on Linear Algebra in Signals, Systems, and Control, San Francisco, California, November 1990.

50. "Sparse Matrix Algorithms for Supercomputer Applications," Tutorial, Supercomputing '90, New York, New York, November 1990.

51. "Partitioning of Unstructured Problems for Parallel Processing," Conference on Parallel Methods on Large Scale Structural Analysis and Physics Applications, NASA Langley Research Center, Hampton, Virginia, February 1991.

52. "A MIMD Implementation of an Unstructured Euler Solver," (with V. Venkatakrishnan and T. Barth), SIAM Conference on Parallel Processing, Houston, Texas, March 1991.

53. "Using Massively Parallel Supercomputers: An Applications Perspective," (with R. Schreiber), Tutorial at Supercomputing '91, Albuquerque, New Mexico, November 1991.

54. "Features of Architecture Independent CFD Codes," (with J. Häuser and H.G. Paap), Parallel CFD '92, New Brunswick, NJ, May 1992.

55. "Erfahrungen und Erwartungen mit massive parallelen Systemen," Supercomputer 92, Mannheim, Germany, June 1992.

56. "Are Parallel Linear Algebra Researchers Solving the Wrong Problems?" Gordon Research Conference, Plymouth, New Hampshire, July 1992.

57. "Towards the Teraflops Capability for CFD," NASA Computational Aerosciences Conference, Moffett Field, California, August 1992.

58. "Spectral Algorithms: A New Approach to Some Discrete Optimization Problems in Scientific Computing," Symposium Three Decades of Numerical Linear Algebra at Berkeley, California, October 1992.

59. "Parallel CFD: Current Status and Future Requirements," (with W. Van Dalsem and Leonardo Dagum), Supercomputing 92, Minneapolis, Minnesota, November 1992.

60. "NAS Parallel Benchmark Results," (with D. Bailey, E. Barszcz, and L. Dagum, presented by L. Dagum), Supercomputing '92, Minneapolis, Minnesota, November 1992.

61. "Towards a Fast Implementation of Spectral Nested Dissection," (with A. Pothen, L. Wang, and S. Barnard, presented by A. Pothen), Supercomputing '92, Minneapolis, Minnesota, November 1992.

62. "A Guided Tour of High Performance Computing: Architecture, Software, Algorithms," Tutorial at Supercomputing '92, Minneapolis, MN, November 1992.

63. "Spectral Algorithms" (invited presentation), Pan-American Workshop on Computational Mathematics, Caracas, Venezuela, January 1993.

64. "Experience with HPCC in the U.S.," FORTWIRTH Symposium, TU Munich, Germany, June 1993.

65. "A Guided Tour of High Performance Computing: Architecture, Software, Algorithms," Tutorial, at Visualization '93, San Jose, California, October 1993, and at Supercomputing '93, Portland, Oregon, November 1993.

66. "Spectral Partitioning for Dynamically Changing Calculations on Parallel Machines," (invited presentation), Seventh Int. Conference on Domain Decomposition Methods in Scientific and Engineering Computing, Pennsylvania State University, University Park, Pennsylvania, October 1993; also presented at

Symposium on Parallel Finite Element Computations, University of Minnesota Supercomputer Institute, Minneapolis, Minnesota, October 1993.

67. "A Spectral Algorithm for Envelope Reduction of Sparse Matrices," (with S. Barnard and A. Pothen), Supercomputing '93, Portland, Oregon, November 1993.

68. "Spectral Algorithms on the CM-5," CM Users Group Meeting, Santa Fe, New Mexico, February 1994.

69. "Six Years of Parallel Computing at NAS: What Have We learned?" Cray Users Group Executive Symposium, Scottsdale, Arizona, April 1994; and Supercomputing Symposium '94, Toronto (invited speaker), Canada, June 1994.

70. "The NAS Parallel Benchmarks: Review and Current Results," (with D. Bailey, E. Barszcz, and L. Dagum), Supercomputer '94, Mannheim, Germany, June 1994.

71. "High Performance Distributed Computing in a Supercomputing Environment: Computational Services and Applications Issues," (with W.T. Kramer), Third IEEE Symposium on High Performance Distributed Computing, San Francisco, California, August 1994.

72. "High Performance Computing for Scientific Applications: An Introduction," (with S. Sinai), Supercomputing 1994, Washington DC, Nov. 1994.

73. "Seven Years of Parallel Computing at NAS (1987-1994): What Have We Learned?" (Invited speaker), 33rd Aerospace Sciences Meeting, Reno, Nevada, January 1995.

74. "Dynamic Load Balancing for Finite Element Calculations on Parallel Computers," (with E. Pramono and A. Sohn), 7th SIAM Conference on Parallel Processing, San Francisco, California, February 1995.

75. "A Parallel Implementation of Multilevel Recursive Spectral Bisection for Application to Adaptive Unstructured Meshes," (with S. Barnard), 7th SIAM Conference on Parallel Processing, San Francisco, California, February 1995.

76. "The State of Parallel Computing in CFD," (invited speaker), Lecture Serie on Parallel Computing in Computational Fluid Dynamics, von-Karman-Institute, Rhode Saint Genese, Belgium, May 1995.

77. "Shared Memory Multiprocessors, Supercomputer Symposium," Mannheim, Germany, June 1995.

78. "Spectral Partitioning," NSF-CBMS Conference: Numerical Linear Algebra on Parallel Processors, San Francisco, California, June 1995. "Spectral Partitioning," NSF-CBMS Conference: Numerical Linear Algebra on Parallel Processors, San Francisco, California, June 1995.

79. "Parallel Supercomputing 1996-2000," (invited speaker), ACM Symposium on Parallel Architectures and Algorithms (SPAA), Santa Barbara, July 1995; XV Congress of the Brazilian Computer Society, Canela, RS, Brazil, July 1995; "Preparing for the 21st Century," Inaugural Symposium for MARINER, Boston University, October 1995.

80. "The New NERSC at LBNL," DOE Graphics Forum," Monterey, California, May 1996.

81. "Dynamic Spectral Partitioning," (invited speaker), Irregular 1996, Santa Barbara, California, August 1996.

82. "Parallel Supercomputing 1996-2000," Wescon 1996, Anaheim, California, October 1996.

83. "Reinventing the Supercomputer Center," (with C.W. McCurdy and W.T. Kramer), Tutorial at Supercomputing 1996, Pittsburgh, PA, November 1996.

84. "High Performance Computing in the U.S: The Next Five Years," (invited speaker), Supercomputing 1997, Mannheim, Germany, June 1997; also presented at U.S. National Congress on Computational Mechanics, San Francisco, California, August 1997.

85. "The Impact of LINPACK on High Performance Computing," SIAM Annual Meeting, Stanford, California, July 1997.

86. "A Subspace-Based Model for Information Retrieval and Associated Computational Issues Using SVD," (with O. Marques and H. Zha), Numerical Methods and Applications 98, Sofia, Bulgaria, August 19-23, 1998.

87. "SHARP: A Scalable Parallel Dynamic Partitioner for Adaptive Computations," (with A. Sohn), Supercomputing 1998, Orlando, FL, Nov. 1998.

88. "Thick Restart Lanczos Algorithm for Symmetric Eigenvalue Problems," (with J. Wu), Supercomputing 1998, November 1998, Orlando, Florida.

89. "Industrial Applications of MPPs," (tutorial), (with A. Koeniges and M. Heroux), Supercomputing 1998, Orlando, Florida, November 1998.

90. "Building the Teraflops/Petabytes Production Supercomputing Center," (with W. Kramer and R. Lucas), (Invited Speaker), Supercomputing 1999, Mannheim, Germany, June 1999.

91. "Building the Teraflops/Petabytes Production Supercomputing Center," (with W. Kramer and R. Lucas), Euro-Par 1999, (Iinvited Speaker), Toulouse, France, September 1999.

92. "Dynamic Spectral Bisection," Workshop on Graph Partitioning & Applications, University of Minnesota, October 1999.

93. "Computational Biology and High Performance Computing," (with M. Zorn, T. Head Gordon, A. Arkin, and B. Shoichet), Tutorial at Supercomputing 1999, Portland, Oregon, November 1999.

94. "High Performance Computing at NERSC," Sherwood 2000 International Fusion Theory Conference, University of California, Los Angeles, March 27, 2000.

95. "The Future of Supercomputers," NASA Langley Colloquium and Sigma Lecture Series, Hampton, Virginia, June 2000.

96. "Building the Teraflops/Petabytes Production Supercomputing Center," (Invited Presentation), Fourth International Conference on Supercomputing in Nuclear Applications (SNA 2000), Tokyo, Japan, also presented at RIST Earth Simulator Research Center, Tokyo, September 2000.

97. "Computational Biology and High Performance Computing 2000," (with M.D. Zorn, S.J. Spengler, B.K. Shoichet, C.Stewart, I.L. Dubchak, and A.P. Arkin), Tutorial presented at SC2000, Dallas, Texas, November 2000.

98. "Large Scale Data Intensive Computing," (with M. Berry), Tutorial at Supercomputer 2001, Heidelberg, Germany, June 2001.

99. "The Future of Supercomputers," (Invited presentation) at Supercomputer 2001,

Heidelberg, Germany, June 2001.

100. "High Performance Computing at NERSC," Snowmass 2001 Conference on the Future of Particle Physics, Snowmass, Colorado, July 2001.

101. "Future Directions in Scientific Supercomputing for Computational Physics," (Invited Presentation), Conference on Computational Physics (CCP), Aachen, Germany, September 2001.

102. "Five Trends in Supercomputing," SSS2001 (Scalable Solver Software) Workshop, University of Tokyo, Japan, December 2001.

103. "Five Trends in Supercomputing for the Next Five Years," Colloquium on the Retirement of Prof. Friedel Hossfeld, von Neuman Institute for Computing (NIC), Julich, Germany, July 2002.

104. "Facts and Wishful Thinking about the Future of Supercomputing," ACTS Workshop, Berkeley, California, September 2002.

105. "The Divergence Problem," The Conference on High Performance Computing and Networking 2002, Baltimore, Maryland, November 2002.

106. "NERSC Overview," US-Japan Computational Science Roundtable, Hawaii, January 2003.

107. "The Divergence Problem," Applied Mathematics Colloquium, Massachusetts Institute of Technology, Cambridge, Massachusetts, Feb. 2003.

108. "SciDAC at NERSC," 8th International Conference on Simulation Science, Shonan Village, Hayama, Japan, March 2003.

109. "Report on NERSC Upgrade and Plans," Advanced Scientific Computing Advisory Committee, (ASCAC), Washington, D.C., March 2003.

110. "The Grand Challenge Question for Performance Evaluation of HPC Systems," Performance Modeling Workshop, Emeryville, CA, May 2003.

111. "The Divergence Problem," 18th International Supercomputer Conference ISC2003, June 24-27, 2003, Heidelberg, Germany, June 2003.

112. "New Computing Initiatives in the U.S.," 18th International Supercomputer Conference ISC2003, Heidelberg, Germany, June 24-27, 2003.

113. "21th TOP500 List," 18th International Supercomputer Conference ISC2003, June 24-27, 2003, Heidelberg, Germany, June 2003.

114. "Berkeley Lab and Computing Sciences at Berkeley Lab," Coalition of Academic Scientific Computation Workshop, August 6-8, 2003, Berkeley, California, August 2003.

115. "Recent Progress in Computational Science at NERSC," (Invited Speaker) High Performance Computing Forum 2003, Tokyo, Japan.

116. "Computational Nanoscience at NERSC and at Berkeley Lab," Supercomputing 2003, Phoenix, Arizona, November 18, 2003.

117. "NERSC – National Energy Research Scientific Computing Center," Presentation to the NRC Panel on "The Future of Supercomputing", Washington D.C., December 4, 2003

118. "What Supercomputers Still Can't Do," (Keynote Speaker), 2004 Nankai Scientific Computing Symposium, August 21-30, 2004, Tianjin, P.R. China

119. "What Supercomputers Still Can't Do, A Reflection on the State-of-the-Art in CSE," (Invited Speaker), International Conference on Computational and Information Sciences (CIS'04), December 16-18, 2004, Shanghai, China.

120. "Petascale Computing for Science," The Salishan Conference on High-Speed Computing, April 18-21, 2005, Gleneden Beach, Oregon.

121. "Petascale Computing for Science," (Invited Speaker), ICCSA2005 Conference," May 7-11, 2005, Singapore

122. "Toward Petascale Computing for Science," (Invited Speaker), 1st Erlangen International High-End Computing Symposium, June 16, 2005, Erlangen, Germany.

123. "What Supercomputers Still Can't Do," (Invited Speaker), Paderborn Opening Ceremony for the pc2," Paderborn University, June 21, 2005, Paderborn, Germany.

124. "Progress in Supercomputing: The Top Three Breakthroughs of the Last 20 and the Top Three Challenges for the Next 20 Years," (Invited Speaker), June 20-24, 2005, ISC2003 Conference, Heidelberg, Germany.

125. "Petascale Computing for Science," (Invited Speaker), ICCSE 2005, June 27-30, 2005, Istanbul, Turkey.

126. "Does Architecture Matter?" (Invited Speaker), NSF CyberInfrastructure Council, July 27, 2005, Arlington, VA.

127. "Progress in Supercomputing: The Top Three Breakthroughs of the Last 20 and the Top Three Challenges for the Next 20 Years," (Invited Speaker), September 30, 2005, Scientific Computing and Imaging Institute, University of Utah, Salt Lake City, Utah.

128. "Cyberinfrastructure Direction at NSF and Implications for UC Research," UC Research Cyberinfrastructure Meeting, October 10-11, 2005, La Jolla, CA.

129. "International Review of Research Using HPC in the UK", HPC Users Meeting, London, UK, December 12, 2005.

130. "Let's Design Our Own Petaflops System!", Workshop on Algorithms and Architectures for Petascale Computing, Schloss Dagstuhl, Wadern, Germany, February 13, 2006.

Panel Discussions

1. "Preparing for the Twenty-first Century: Scalable Algorithms and Applications for Aerospace Science and Engineering," Panel Discussion, CAS Workshop, NASA Ames Research Center, Feb. 15-17, 2000.

2. "A Few Comments about the Future of Supercomputing," Panel Discussion at National Academy of Engineering Regional Meeting, Berkeley, Calif., June 2001.

3. "The 40 Tflop/s Earth Simulator System: Its Impact on the Future Development of Supercomputing," Panel Discussion at SC02, Baltimore, MD., November 2002.

4. "Advancing High End Computing," Panel Discussion, Washington D.C., November 12, 2003.

5. "High Performance Computing," Panel Discussion, SIAM Conference on Computational Science & Engineering, Orlando, Florida, February 12-15, 2005.

Professional Activities

Boards

Wissenschaftlicher Beirat, Konrad Zuse Zentrum, Berlin (ZIB), Germany.

Member, International Advisory Panel for the Institute of HPC (iHPC), Singapore.

Member, Industrial Advisory Board, Dept. of Computer Science, University of California, Davis.

Chair of the Scientific Advisory Board of CSCS (Swiss National Center of Scientific Computing), Manno, Ticino, Switzerland.

Member SCOMA Advisory Board, University of Jyväskylä, Finland.

Member Advisory Board, iPARK, San Jose, California (1999-2000).

Member Board of Directors, Pumpkin Networks, Sunnyvale, California (1999-2001).

Organizational Reviews

Reviewer of NASA Information Power Grid (IPG), Moffett Field, June 1998.

Reviewer of NOAA/Forecast Systems Laboratory, Boulder, Colorado, July 1999.

Reviewer of the NSF PACI Centers in San Diego and Urbana-Champaign, Sept. 1999.

Reviewer of the HLRS Stuttgart, Germany, May 2000.

Reviewer of the Computation Directorate, Lawrence Livermore National Laboratory (2002-2003).

Reviewer of the Swiss Centre for Scientific Computing CSCS, Manno, Switzerland, July 2002.

Reviewer for World Technology Evaluation Center (WTEC), January 2004.

Reviewer of Scientific Computing Program of the Helmholtz Society, Cologne, Germany, May 2004.

Reviewer of Research Using High Performance Computing Facilities in the UK, September 2005.

Editor and Referee

Managing Editor, International Journal of High Speed Computing (1989-1997).

Member, Editorial Board, SIAM Journal of Scientific and Statistical Computing (1989 1995).

Member, Editorial Board, Int. Journal of High Performance Computing Applications.

Member, Editorial Board, Journal of Scientific Programming.

Member, Editorial Board, Advances in Engineering Software (formerly Computing Systems in Engineering).

Member, Editorial Board, Computing and Visualization in Science.

Member, Editorial Board, NHSE Review.

Member, Editorial Board, Scientific Computing.

Editor of Proceedings of the Conference on Scientific Applications of the Connection

Machine.

Editor, special issue of SIAM J. Matrix Analysis and Applications, selected papers of the 1989 Sparse Matrix Symposium, 1990.

Editor, special issue of IEEE Journal of Computational Science and Engineering on Scientific Visualization (Fall 1996).

Editor, special issue of J. Par. Dist. Computing on dynamic load balancing.

Referee for SIAM Journal on Numerical Analysis, SIAM Journal on Scientific and Statistical Computations, SIAM J. Matrix Analysis and Applications, Mathematics of Computation, IEEE Computer, Linear Algebra and Its Applications, Journal of Computational Physics, Journal of Parallel and Distributed Computing, National Computer Conference 85, ICPP 1988, ICPP 1989, Supercomputing 88-93 (among others).

Proposal reviewer for the National Science Foundation, the Air Force Office of Scientific Research, Department of Energy and NASA.

Reviewer for Computing Reviews; Math. Reviews.

Book proposal reviewer for Morgan-Kauffman, Cambridge University Press.

Conferences

Organizer of minisymposium "Applications in the Search of Supercomputers," NCC 1987, Chicago, Illinois.

Organizer of minisymposium "Parallel Programming: Myth and Reality," for COMPCON '88, San Francisco, California.

Organizer of workshop on "Supercomputer Applications of Sparse Matrices," March 1988, Santa Cruz, California.

Member, Organizing Committee, Conference on "Scientific Applications of the Connection Machine," September 1988, Moffett Field, California.

Member, Organizing Committee, "SIAM Conference on Sparse Matrices," Gleneden Beach, Oregon, 1989.

Organizer, Workshop on "Sparse Matrix Standards: Sparse BLAS2 and Beyond," Gleneden Beach, Oregon, May 1989.

Organizer and Moderator, Panel Discussion on "Are Highly Parallel Systems Ready for Prime Time?" Conference on Parallel CFD, Manhattan Beach, California, May 1988.

Member Organizing Committee, "DMCC5 (5th Hypercube Meeting)," Charleston, South Carolina, April 1990; DMCC6 Portland, Oregon, April 1991; SHPCC 92, Williamsburg,

Virginia, April 1992.

Member Organizing Committee, "Parallel CFD '90, Indianapolis," May 1990; Parallel CFD '91, Stuttgart, Germany; Parallel CFD '92, New Brunswick, NJ; Parallel CFD '93, Paris, France; Parallel CFD '94, Kyoto, Japan; [Parallel CFD '95, Pasadena](); [Parallel CFD '96, Capri, Italy]().

Member Technical Program Committee, CONPAR 90 - VAPP IV, September 1990, Zurich, Switzerland.

Member Subcommittee on Applications, Supercomputing 90, New York, November 1990.

Organizer and Moderator, "Massive Parallelism: Current Status and Future Directions," Panel Discussion at Supercomputing USA/Pacific '91, Santa Clara, California, June 1991. Member, organizing committee, ISAAC '92, Berkeley, California, 1992.

Member, Organizing Committee, IEEE Virtual Reality Annual International Symposium, Seattle, September 1993.

Organizer of "Distributed Computing in the Aeroscience," NASA Workshop, October 1993.

Member Organizing Committee, "7th SIAM Conference on Parallel Processing for Scientific Computing," San Francisco, California, 1995.

Member Organizing Committee, "SPAA 1996," Padova, Italy.

Member Organizing Committee, "SIAM Conf. on Sparse Matrices," Coeur d'Alene, Idaho, 1996.

Member Organizing Committee, "Irregular '97," Bielefeld, Germany.

Member Technical Program Committee, "Supercomputing '97," San Jose, California.

Awards Committee for "SuParCup '97."

Conference Organizer, "Irregular '98," Berkeley, California.

Chair Applications, "Supercomputing '98," Orlando, Florida.

Member Program Committee, "Irregular '99," San Juan, Puerto Rico.

Chair, New Architectures, New Applications, ISC2003 Conference, June 22, 2005, Heidelberg, Germany.

Member Program Committee, "Sparse'99," Int. Conf. on Preconditioning Techniques for Large Sparse Matrices, Minneapolis, Minnesota, June 1999.

Member of the "SuParCup'99" Award Committee.

Topic Committee Member, "Euro-Par 99," Toulouse, France.

Member Program Committee, "IPPS/SPDP 2000," Cancun, Mexico, May 2000.

Member Program Committee, "7th International Workshop on Solving Irregularly Structured Problems in Parallel," Cancun, Mexico, May 2000.

Member Program Committee, "Intl. Conference on Supercomputing'00 (ICS)," Santa Fe, New Mexico, May 8-11, 2000.

Member, Program Committee, "SGI'2000," Krakow, Poland, October, 2000.

Member Program Committee, "HiPC'2000," Bangalore, India, December 2000.

Local Arrangements Chair, "2001 IEEE Intl Symposium: High Performance Distributed Computing (HPDC'10)," San Francisco, CA, Aug. 7-9, 2001.

Member Program Committee, "XIII SBAC-Brazilian Symposium Computer Architecture & High Performance Computing," Brasilia, Brazil, Sept. 2001.

Awards Chair, SC2001, Denver, Colorado, November 2001.

Program Vice Chair Applications, "HiPC'2001," December 17-20,. 2001, Hyderabad,

India.

Member, Organizing Committee, "Mission Computing Conference," Washington D.C., February 4-6, 2002.

Member, Program Committee, "International Parallel and Distributed Processing Symposium (IPDPS), Ft. Lauderdale, Florida, April 2002.

Member, Organizing Committee, "Scaling to New Heights," Pittsburgh, Pennsylvania, May 20-21, 2002.

Member, Program Committee, "2002 IEEE Intl Symposium on High Performance Distributed Computing (HPDC'11)," Edinburgh, Scotland, July 24-26, 2002.

Member, Program Committee, "14th Symposium on Computer Architecture for High Performance Computing (SBAC-PAD 2002)," Victoria, Brazil, Oct. 2002.

Member, Organizing Committee, "SIAM Conference on Applied Linear Algebra," July 16-19, 2003, Williamsburg, Virginia.

Organizer, "CASC (Coalition for Academic Scientific Computing)," Summer Meeting in Berkeley, August 6-8, 2003.

Member Program Committee, "ParCo 2003," Dresden, September 2-5, 2003.

Member Program Committee, "SBAC-PAD," 15th Symposium on Computer Architecture and High Performance Computing, Sao Paulo, Brazil, November 10-12, 2003.

Organizer of a short course on "Applications of Parallel Computers" at PANAM V, Honduras, January 2004.

Conference Co-chair, "SIAM Conference on Parallel Processing," SIAM PP04, San Francisco, California, February 25-27, 2004.

Co-Organizer of Workshop on "Combinatorial Scientific Computing (CSC04)," San Francisco, California, February 27-28, 2004.

Conference Vice-Chair for Applications, "IPDPS'04," International Parallel and Distributed Processing Symposium, April 26-30, 2004, Santa Fe, NM.

Member, International Advisory Committee for CCP04 (Conference on Computational Physics), Genoa, Italy, Sept. 1-4, 2004.

Member, Organizing Committee, Symposium on Computer Architecture and High Performance Computing (SBAC-PAD), Rio De Janeiro, Brazil, Oct. 2005.

Co-chair and Steering Committee Member, Workshop on Extreme Computing, Santa Cruz, CA, October 2005.

Co-chair, Workshop on Algorithms for Petascale Systems, Schloss Dagstuhl, Germany, February 2006.

Member, Organizing Committee, CRA Snowbird Meeting, June 2006.

Member, Organizing Committee, ISC 2006, International Conference on Supercomputing, Dresden, Germany, June 2006.

Member, Organizing Committee, CCP 2006, Conference on Computational Physics, Gyeongju, Korea, August 2006.

Professional Organizations

Chair, SIAM Activity Group on Supercomputing, (1994-1996)

Member, Society for Industrial and Applied Mathematics, "SIAM Activity Groups on Linear Algebra and on Supercomputing.

Member, IEEE Computer Society.

Member, Association of Computing Machinery (ACM).

Member, IEEE Gordon Bell Prize Committee (1990-1994).

Associate, Foresight Institute.

Institutional Representative to Coalition for Academic Scientific Computing (CASC)

Personal Data

Born August 8, 1953, in Stadtsteinach, Germany; U.S. citizen; married, two children. Attended Markgraf-Georg-Friedrich Gymnasium Kulmbach, Germany (1963-72); Abitur 1972; military service (1972-73) in the Bundeswehr; scholarship from the Bayerisches Begabtenförderungsgesetz 1973-1977.

For information, contact Horst Simon

Updated 3/13/2006.