

Cynthia A. Phillips

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Education

Ph.D. in Computer Science 1990

Massachusetts Institute of Technology, Cambridge, Massachusetts

Dissertation: *Theoretical and Experimental Analyses of Parallel Combinatorial Algorithms*

Advisor: Charles Leiserson

Minor: imaging technology

M.S. Electrical Engineering and Computer Science 1985

Massachusetts Institute of Technology, Cambridge, Massachusetts

Dissertation: *Space-efficient algorithms for computational geometry.*

Advisor: Charles Leiserson

B.A. Applied Mathematics with application to computer science, 1983

Harvard University, Cambridge, MA

Research Areas - past and present

Combinatorial optimization, Algorithm design and analysis, parallel computation, scheduling, network and infrastructure surety, sensor placement, wireless networks, integer programming, graph algorithms, vehicle routing, computational biology, experimental algorithmics, complex network analysis, cybersecurity

Honors and Awards

2010	IEEE Meritorious Service Award
2010	Award for Excellence in Technology Transfer given by Federal Laboratory Consortium for Technology Transfer (FLC) Red Storm Massively Parallel Processor Supercomputer Architecture team
2008	Franz Edelman Award finalist, team member “Reducing Security Risks in American Drinking Water Systems”
2006	R&D 100 Award (team member), Compute Process Allocator
2006	(US Representative) Heather Wilson recognition as “Builder of Dreams and Community” for mathematical education outreach
2008, 2007, 2006, 2004	
2003, 2002, 1998, 1993	Sandia National Laboratories Award for Excellence
2000	Sandia National Laboratories Employee Recognition Award, Individual Technical Excellence
2000	YWCA (Central Rio Grande) Woman on the Move in Science and Technology
1987-1989	IBM Graduate Fellowship
1982	Phi Beta Kappa

Patents

- 2009 Patent 7,565,657, Allocating Application to Group of Consecutive Processors in Fault-Tolerant Deadlock-Free Routing Path Defined By Routers Obeying Same Rules for Path Selection (with Leung, Bender, Bunde)
- 2006 Patent 7,013,395, Method and Tool for Network Vulnerability Analysis (with L. Swiler)

Professional Experience

Sandia National Laboratories, NM, Senior Scientist (3/2010 - present)

Sandia National Laboratories, NM, Distinguished Member of Technical Staff, (10/2000-3/2010)

Sandia National Laboratories, NM, Principal Member of Technical Staff, (1/98 - 10/2000)

Sandia National Laboratories, NM, Senior Member of Technical Staff, (1/90 - 1/98)

Research projects: Head of the research effort in combinatorial optimization, running \$1-2M annual budget, obtained via proposals from several sources such as DOE Applied Mathematical Research and DARPA (administrative and technical lead or co-lead). Designed and Analyzed algorithms for network reliability, graph algorithms, combinatorial scheduling, sensor placement in networks (for the EPA; used by many large US cities), scheduling error correction for qubits in quantum architectures, and computational biology. There are now several peers in the group. One of the leaders of the PICO (Parallel Integer and Combinatorial Optimization) project, the first massively parallel, general mixed-integer programming code. One of the technical leads on a computer-network vulnerability analysis tool (vulnerability to electronic/hacker attack).

Thinking Machines Corporation, Cambridge, MA, Consultant, (5/87-6/89)

Project: Development and implementation on the Connection Machine of algorithms for combinatorial optimization including the simplex algorithm for linear programming, network flow, assignment problem, and traveling salesman.

Massachusetts Institute of Technology, Cambridge, MA, (9/83 - 10/89)

Project: Research Assistant in VLSI algorithms, parallel algorithms. Teaching assistant for introductory programming course (Fall 1983) and introductory algorithms course (Fall 1985).

Bolt, Beranek, and Newman, Inc., Cambridge, MA, (Summers 1983, 1984)

Projects: Designed and implemented database for a network monitor/automated network manager for packet radio networks and the arpanet.

General Computer Company, Cambridge, MA, (Summer 1982)

Project: Designed and implemented video games.

Harvard University, Cambridge, MA, (9/80-6/83, except spring 1981).

Project: Undergraduate Teaching Fellow for course designed to meet undergraduate core requirement in quantitative reasoning. Sole lecturer for 8-28 students. Designed and graded homework and exams. Head teaching fellow 1982-1983.

Other Professional Experience

University of New Mexico, Research Associate Professor of Electrical & Computer Engineering, (10/2002-present).

VLSI Design

Designed VLSI chip to perform pseudorandom permutation of bit-serial messages, 1985. Manufactured through MOSIS. Unpublished manuscript “A pseudorandom permuter for bit-serial messages.”

Service to the CS/math/OR Community

IEEE Symposium on Parallel and Distributed Processing, Program Committee 1993

Europar, Chair of Program Committee, Workshop on Parallel and Distributed Computing, 1997

ACM/SIAM Symposium on Discrete Algorithms, Program Committee 1999

International Computing and Combinatorics Conference, Program Committee 2003.

Scandinavian Workshop on Algorithm Theory, program committee (SWAT), 2004.

Heterogeneous Computing Workshop (HCW), program committee, 2005, 2006

IEEE International Conference on High Performance Computing, program committee, 2005

SIAM Workshop on Combinatorial Scientific Computing, organizing committee, 2005.

Grid and Pervasive Computing Conference, program committee, 2006, 2007, 2008

Workshop on Algorithm Engineering and Experiments (ALENEX), program committee 2007.

International Workshop on Discrete Algorithms and Methods for Mobile Computing and Communications (DIALM), Program Committee, 2000, 2001, 2002. DIALM-POMC (Foundations of Mobile Computing) 2003, 2005, 2007, 2008 conference co-chair 2004.

editor, special issue of *Algorithmica* on algorithms for mobile computing and communication.

INFORMS session organizer 2006, 2007, 2009.

Models and Algorithms for Planning and Scheduling Problems, PC 2009.

IEEE International Parallel and Distributed Processing Symposium, program committee, 2006, 2007, 2009, 2011, 2012, Algorithms co-chair 2008, program committee chair 2010

ACM Symposium on Parallelism in Algorithms and Architectures (SPAA), Program Committee 1994, 2000, 2003, 2005, 2009, conference secretary 1999-2004, local arrangements chair (joint with PODC) 2005, program committee chair 2010.

International Workshop on Network Science for Communication Networks, program committee 2011, 2012

International Conference on Distributed Computing Systems, program committee, 2011

ICORES 2011 (1st International Conference on Operations Research and Enterprise Systems), program committee

Workshop on Parallel Computing and Optimization (PCO), program committee, 2011, 2012

INFORMS Computing Society 2011 conference, organizing committee

Institute for Pure and Applied Mathematics (IPAM) program on Navigating Chemical Compound Space for Materials and Bio Design, workshop II: Optimization, search, and graph-theoretical algorithms for chemical compound space, organizing committee (and scheduled tutorial speaker)

SIAM Special Interest Group on Supercomputing (SIAM SIAG/SC) program director 2008-9, chair 2010-11.

SIAM Conference on Parallel Processing for Scientific Computing co-organizer, 2010.

Member oversight board, SIAM Mathematics in Industry study 2008-2011.

SIAM program committee 2010-2012.

SIAM Nominating committee 2011-12.

INFORMS Computing Society Board, 3 years starting in 2011

Math/Science Education Outreach

Science advisor to the Zia elementary school (Zia Pueblo), 1990-91, coached team in NM high school supercomputer challenge 1991-92, Adventures in Supercomputing mentor 1993-4, Adventures in Supercomputing Judge 1994-8, coordinator/main author of Go Figure Mathematics Competition 1998-2005, lecturer at *Dream Catcher* summer program 1999, Number Forest (math) exhibit planning for Explora museum. Member, Board of Trustees, Manzano Day School, Albuquerque, NM, 2010-present.

Journal/Book Publications

R. Murray, T. Haxton, W. E. Hart, and C. A. Phillips, "Real-world case studies for sensor network design of drinking water contamination warning systems," *Handbook of Water and Wastewater Systems Protection*, editors: R. M. Clark, S. Hakim, and A. Ostfeld, Series: Protecting Critical Infrastructure, Springer, New York, 2011, pp. 319-348.

J. Levy, M. S. Carroll, A. Ganti, C. A. Phillips, A. J. Landahl, T. M. Gurreri, R. D. Carr, H. L. Stalford, and E. Nielse, "Implications of electronics constraints for solid-state quantum error correction and quantum circuit failure probability" *New Journal of Physics*, September 2011.

J. Berry, B. Hendrickson, R. LaViolette, and C. Phillips, "Tolerating the community detection resolution limit with edge weighting," *Physical Review E*, Vol. 83, No. 5, May 2011.

S. Basagni, A. Carosi, C. Petrioli, C. Phillips, "Coordinated and controlled mobility of multiple sinks for maximizing the lifetime of wireless sensor networks," to appear in *Wireless Networks*. A preliminary version appeared in *Proceedings of the IEEE International Conference on Communications (ICC)*, Dresden, June 2009.

V. King, C. Phillips, J. Saia, M. Young, "Sleeping on the job: energy-efficient and robust broadcast for radio networks," *Algorithmica*, Vol. 61, No. 3, pp. 518-554, 2011. A preliminary version appeared in *Proceedings of 27th Annual ACM Symposium on Principles of Distributed Computing (PODC)*, pp. 243-252, 2008.

J. Berry, R. Carr, W. Hart, V. Leung, C. Phillips, J.-P. Watson, “Designing contamination warning systems for municipal water networks using imperfect sensors,” *Journal of Water Resources Planning and Management*, Vol. 135, No. 4, pp. 253–263, July/August, 2009.

R. Murray, W. E. Hart, C. A. Phillips, J. Berry, E. Boman, R. D. Carr, L. A. Riesen, J.-P. Watson, T. Baranowski, G. Gray, J. Herrmann, R. Janke, T. N. Taxon, J. Uber, K. Morley, “U. S. Environmental Protection Agency uses Operations Research to Reduce Drinking Water Contamination Risks,” Edelman finalist paper, *Interfaces*, Vol. 39, No. 1, pp. 57-68, January-February 2009.

M. Bender, D. Bunde, E. Demaine, S. Fekete, V. Leung, H. Meijer, and C. Phillips, “Communication-Aware processor allocation for supercomputers: finding point sets of small average distance,” *Algorithmica*, Vol 50, No. 2, pp. 279–298, 2008. Preliminary version appeared in *Proceedings of Workshop on Algorithms and Data Structures (WADS)*, 2005.

Ostfeld et. al. (one of 34 authors), “The battle of the water sensor networks (BWSN): a design challenge for engineers and algorithms,” *Journal of Water Resources Planning and Management*, Vol. 134, No. 6, November/December 2008, pp. 556–568.

S. Basagni, C. Phillips, “Editors foreward to the special issue on principles of mobile communications and computing,” *Algorithmica*, Vol 49, No 4, December 2007, pp. 259-263.

J. Berry, W. Hart, C. Phillips, J. Uber, and J-P. Watson, “Sensor placement in municipal water networks with temporal integer programming models,” *Journal of Water Resources Planning and Management*, Vol. 132, No. 4, pp. 218–24, July/August 2006.

R. Carr, H.J. Greenberg, W. E. Hart, G. Konjevod, E. Lauer, H. Lin, T. Morrison, C. Phillips, “Robust Optimization of Contaminant Sensor Placement for Community Water Systems,” *Mathematical Programming B*, Vol. 107, No. 1, pp. 337-356, June, 2006.

J. Eckstein, W. Hart, and C. Phillips, “Massively-Parallel Mixed-integer programming: algorithms and applications,” in *Parallel Processing for Scientific Computing*, M.A. Heroux, P. Raghavan, and H.D. Simon editors, SIAM, 2006.

J. Berry, L. Fleischer, W. Hart, C. Phillips, J-P. Watson, “Sensor Placement in Municipal Water Networks,” *Journal of Water Resources Planning and Management*, Vol. 131, No. 3, May, 2005, pp. 237–243.

D. Bader, W. Hart, and C. Phillips, “Parallel algorithm design for branch and bound,” in H. J. Greenberg (ed), *Tutorials on Emerging Methodologies and Applications in Operations Research*, Kluwer Academic Press, 2004.

Carl Burch, Robert Carr, Sven Krumke, Madhav Marathe, Cynthia Phillips, and Eric Sundberg, “A decomposition-based pseudoapproximation algorithm for network flow inhibition”, in *Network Interdiction and Stochastic Integer Programming*, D.L. Woodruff (ed), Kluwer Academic Press, 2003, pp. 51-68.

Kwan Kwok, Brian Driessen, Cynthia Phillips, and Craig Tovey, “Analyzing the Multiple-Target-Multiple-Agent Scenario Using Optimal Assignment Algorithms,” *Journal of Intelligent and Robotic Systems*, Vol. 35, No. 1, September 2002, pp. 111-122, preliminary version appeared

in *SPIE Proceedings Volume 3209, Sensor Fusion and Decentralized Control in Autonomous Robotic Systems*, Pittsburgh, PA, October 14-15, 1997.

Cynthia Phillips, R.N. Uma, and Joel Wein, “Off-line Admission Control for General Scheduling Problems,” *Journal of Scheduling*, Vol. 3, No. 6, 2000, pp. 365–382, preliminary version appeared in *Proceedings of the Eleventh Annual ACM/SIAM Symposium on Discrete Algorithms*, January 2000, pp. 879–888.

Cynthia Phillips, Clifford Stein, Eric Torng, and Joel Wein, “Optimal Time-Critical Scheduling via Resource Augmentation,” *Algorithmica*, Vol. 32, pp. 163-200, 2002, preliminary version in *Proceedings of the 29th Annual ACM Symposium on Theory of Computing*, El Paso, TX, May 4-6, 1997, pp. 140-149.

Maria Bonet, Cynthia Phillips, Tandy Warnow, and Shibu Yooseph, “Constructing Evolutionary Trees in the Presence of Polymorphic Characters,” *SIAM Journal on Computing*, Vol. 29, No. 1, pp. 103-131, 1999, Preliminary version appeared in *Proceedings of the 28th Annual ACM Symposium on Theory of Computing*, Philadelphia, PA, May 22-24, 1997, pp. 220-229.

Mary Cryan, Leslie A. Goldberg, and Cynthia A. Phillips, “Approximation algorithms for the fixed-topology phylogenetic number problem,” *Algorithmica*, Vol. 25, 1999, pp. 311-329. Preliminary version in *Combinatorial Pattern Matching* 1996.

Cynthia Phillips, Clifford Stein, and Joel Wein, “Minimizing Average Completion Time in the Presence of Release Dates,” *Mathematical Programming B*, Vol. 82, Nos. 1-2, June 1998, pp. 199-224, Preliminary version in C. Phillips, C. Stein, and J. Wein. Preliminary version “Scheduling jobs that arrive over time,” in *Proceedings of the Fourth International Workshop on Algorithms and Data Structures*, pages 86-97, 1995.

Soumen Chakrabarti, Cynthia Phillips, Andreas Schulz, David Shmoys, Clifford Stein, and Joel Wein, “Improved Bounds on Relaxations of a Parallel Machine Scheduling Problem,” *Journal of Combinatorial Optimization*, Vol. 1, No. 4, 1998, pp. 413-426.

Leslie Ann Goldberg, Paul Goldberg, Cynthia A. Phillips, and Gregory Sorkin, “Constructing Computer Virus Phylogenies,” *Journal of Algorithms*, Vol. 26, No. 1, 1998, 188-208.

Cynthia Phillips, Clifford Stein, and Joel Wein, “Task Scheduling in Networks,” *SIAM Journal on Discrete Mathematics* Vol. 10, No. 4, 11/97, pp. 573-598.

Leslie Ann Goldberg, Paul Goldberg, Cynthia A. Phillips, Elizabeth Sweedyk, and Tandy Warnow, “Minimizing phylogenetic number to find good evolutionary trees,” *Discrete Applied Mathematics* Vol. 71 Nos. 1-3, 5 December 1996, pp. 111-136.

Cynthia A. Phillips and Tandy Warnow, “The Asymmetric Median Tree – A New Model for Building Consensus Trees,” *Discrete Applied Mathematics*, Vol. 71 Nos. 1-3, 5 December 1996, pp. 311-336.

David S. Greenberg, William E. Hart and Cynthia A. Phillips, “Enabling Department-Scale Supercomputing,” *Algorithms for Parallel Processing*, IMA Volumes in Mathematics and Its Applications, Vol 105, 1997, pp. 321-344.

Cynthia A. Phillips and Stavros A. Zenios, “Experience with Large-Scale Network Optimization,” in *Impact of Recent Computer Advances on Operations Research*, Elsevier Science Publishing Co., 1989.

Refereed Conference Publications (those with journal versions are only listed above)

J. E. Levy, A. Ganti, C. A. Phillips, B. R. Hamlet, A. J. Landahl, T. M. Gurrieri, R. D. Carr, and M. S. Carroll “Brief Announcement: The Impact of Classical Electronics Constraints on a Solid-State Logical Qubit Memory,” *Proceedings of the 21st ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)*, pp. 166-168. August, 2009.

S. Basagni, A. Carosi, C. Petrioli, C. Phillips, “Moving multiple sinks through wireless networks for lifetime maximization,” Short paper in *5th IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS)*, pp. 523–526. Sept. 2008.

W. Hart, J. Berry, E. Boman, C. Phillips, L. A. Riesen, and J.-P. Watson, “Limited-memory techniques for sensor placement in water distribution networks,” *Proceedings of the Learning and Intelligent Optimization conference*, Springer Volume 5313, 2008.

W. E. Hart, J. W. Berry, R. Heaphy, and C. A. Phillips, “EXACT: The EXperimental Algorithmics Computational Toolkit,” *proceedings of the Experimental Computer Science Conference*, 2007.

M. Bender and C. Phillips, “Scheduling DAGs on asynchronous processors,” *Proceedings of the 19th Annual Symposium on Parallelism in Algorithms and Architectures (SPAA)*, 2007, pp. 35–45.

E. Asgeirsson, J. Berry, C. Phillips, D. Phillips, C. Stein, J. Wein “Scheduling an Industrial Production Facility,” *Proceedings of the 10th Conference on Integer Programming and Combinatorial Optimization*, Lecture Notes in Computer Science, 3064, Springer, June 2004, 116–131.

V. Leung, E.M. Arkin, M.A. Bender, D. Bunde, J. Johnston, A. Lal, J.S.B. Mitchell, C. Phillips, S. Seiden, “Processor Allocation on Cplant: Achieving General Processor Locality Using One-Dimensional Allocation Strategies,” *IEEE International Conference on Cluster Computing*, September 2002.

Laura P. Swiler, Cynthia Phillips, David Ellis, and Stefan Chakerian “Computer-Attack Graph Generation Tool,” *Proceedings of the DARPA Information Survivability Conference and Exposition*, June 12-14, 2001.

Jonathan Eckstein, William Hart, and Cynthia Phillips, “PICO: An object-oriented framework for parallel branch and bound,” in *Inherently Parallel Algorithms in Feasibility and Optimization and Their Applications*, D. Butnariu, Y. Censor, and S. Reich (editors), Elsevier Science Publishers, Amsterdam, The Netherlands, 2001, pp. 219–265.

Robert Carr, Lisa Fleischer, Vitus Leung, and Cynthia Phillips, “Strengthening the Integrality Gaps for Capacitated Network Design and Covering Problems,” *Proceedings of the Eleventh Annual ACM/SIAM Symposium on Discrete Algorithms*, January 2000, pp. 106–115.

Cynthia A. Phillips and Laura P. Swiler, “A graph-based system for network-vulnerability analysis,” *Proceedings of the New Security Paradigms Workshop*, 1998.

David B. Wilson, David Greenberg, and Cynthia Phillips, "Beyond Islands: Runs in Clone-Probe Matrices," *Proceedings of the First International Conference on Molecular Biology (RECOMB)*, Santa Fe, NM, Jan. 20-23, 1997, pp. 320-329.

Jonathan Eckstein, William E. Hart and Cindy Phillips, "Resource Management in a Parallel Mixed Integer Programming Package," *Proceedings Intel Supercomputer Users Group 13th Annual Conference*, Albuquerque, NM. June 11-13, 1997.

Soumen Chakrabarti, Cynthia A. Phillips, Andreas S. Schulz, David B. Shmoys, Clifford Stein, and Joel Wein, "Improved Scheduling Algorithms for Minsum Criteria," *Proceedings of the 23rd ICALP*, July 1996.

Cynthia A. Phillips, "The Network Inhibition Problem," *Proceedings of the 25th Annual ACM Symposium on the Theory of Computing*, May 16-18, 1993, pp.776-785.

James K. Park and Cynthia A. Phillips, "Finding Minimum-Quotient Cuts in Planar Graphs," *Proceedings of the 25th Annual ACM Symposium on the Theory of Computing*, May 16-18, 1993, pp.766-775.

Cynthia A. Phillips, "Parallel graph contraction," *First ACM Symposium on Parallel Algorithms and Architectures (SPAA)*, Santa Fe, NM, June 18-21, 1989, pp.148-157.

Ajit Agrawal, Guy E. Blelloch, Robert L. Krawitz, and Cynthia A. Phillips, "Four Matrix-Vector Primitives," *Proceedings of the First ACM Symposium on Parallel Algorithms and Architectures (SPAA)*, Santa Fe, NM, June 18-21, 1989, pp.292-302.

Other Conference Publications

D. Hart, W. Hart, S. McKenna, R. Murray, C. Phillips, "Integrating event detection system operating characteristics into sensor placement optimization," *12th Water Distribution Systems Analysis Symposium*, September, 2010.

J. Berry, E. Boman, C. Phillips, L. A. Riesen, "Low-memory Lagrangian relaxation methods for sensor placement in municipal water networks," World Water and Environmental Resources Congress, 2008.

W.E. Hart, J.W. Berry, R. Murray, C. Phillips, L. A. Riesen, J.-P. Watson, "The TEVA-SPOT toolkit for drinking water contaminant warning system design," World Water and Environmental Resources Congress, 2008.

J. W. Berry, R.D. Carr, W.E. Hart, C.A. Phillips, "Scalable water network sensor placement via aggregation," World Water and Environmental Resources Congress, 2007.

Jon Berry, Erik Lauer, Henry Lin, Cynthia Phillips, "Scheduling manual sampling for contamination detection in municipal water networks," Symposium on Water Distribution Systems Analysis, 2006

Jon Berry, Robert Carr, William Hart, Vitus Leung, Cynthia Phillips, and Jean-Paul Watson, "On the placement of imperfect sensors in municipal water networks," Symposium on Water Distribution Systems Analysis, 2006

Jon Berry, William Hart, Cynthia Phillips, James Uber, Thomas Walski, “Water Quality Sensor Placement in Water Networks with Budget Constraints,” World Water and Environmental Resources Congress 2005.

Jon Berry, William Hart, Cynthia Phillips, James Uber, Jean-Paul Watson, “Validation and Assessment of Integer Programming Sensor Placement Models,” World Water and Environmental Resources Congress 2005.

Jon Berry, William Hart, Cynthia Phillips, Jean-Paul Watson, “Scalability of Integer Programming Computations for Sensor Placement in Water Networks,” World Water and Environmental Resources Congress 2005.

Significant Other Publications

R. Murray, T. Haxton, R. Janke, W. E. Hart, J. W. Berry, and C. A. Phillips (2010). “Sensor Network Design for Contamination Warning Systems: A Compendium of Research Results and Case Studies Using the TEVA-SPOT Software.” U. S. Environmental Protection Agency, Office of Research and Development, National Homeland Security Research Center, Cincinnati OH. EPA/600/R-09/141.

Selected Invited Presentations/Participation

Institute for Mathematics and its Applications, Workshop on Algorithms for Parallel Processing, Sept. 1996.

Workshop on Combinatorial Approximation Algorithms, Schloss Dagstuhl, August 1997

Workshop on Scheduling in Computer and Manufacturing Systems, Schloss Dagstuhl, October, 1999, June 2002, June 2004.

Center for Discrete Mathematics and Computer Science (DIMACS) workshop on Computing Approximate Solutions to NP-hard Problems, February, 2000.

ACM Symposium on Parallel Algorithms and Architectures, July, 2000.

International Symposium on Mathematical Programming, August, 2000, 2009.

Workshop on Algorithm Engineering and Experiments (ALENEX), January, 2002.

Workshop on Network Interdiction and Stochastic Programming, March, 2002.

Workshop on Experimental Algorithmics, Schloss Dagstuhl, September, 2000, September 2002.

Workshop on Parallelism in Algorithms and Architectures, March, 2003.

Workshop on Women of Applied Mathematics: Research and Leadership, senior invited participant.

SIAM Conference on Parallel Processing for Scientific Computing, plenary speaker, 2004.

Principal Lecturer, DIMACS Reconnect Workshop, “Experimental algorithmics with a focus on branch and bound for discrete optimization problems,” June 2004.

Eighth Seminar on the Latest Advances in Computer Science (LACS), also called UAI 2004 (Últimos Avances en Informática), La Laguna University, Tenerife, Spain, November 2004.

Workshop on Scheduling for New Emerging Applications, Centre International de Recontres Mathematiques (C.I.R.M), Luminy-Marseille, France, June 2006.

DIMACS Workshop on COIN-OR, July, 2006.

Operations Research 2007 (GOR 2007), Saarbrucken, Germany, semi-plenary speaker.

Workshop on New Challenges in Scheduling Theory, Centre International de Recontres Mathematiques (C.I.R.M), Luminy-Marseille, France, May 2008, and follow on in Frejus, France, September 2010. co-organizer October 2012.

Senior invited speaker/mentor, Advanced Career Mentoring Workshop (CAPP-L), CRA-W, November, 2008.

Workshop on Mixed-Integer Nonlinear Optimization: Algorithmic Advances and Applications, Institute for Mathematics and its Applications, November, 2008

Workshop on Algorithms and Data Structures, Bertinoro, Italy, June, 2009, 2011

Semi-plenary SIAM Annual Meeting, July 2009

CRA-W Distinguished lecture, University of Texas at San Antonio, March, 2010

Bay Area Discrete Math Day, April 2010 (invited major speaker)