William J. Cook

Combinatorics and Optimization
University of Waterloo
200 University Avenue West
Waterloo, Ontario N2L 3G1
Canada
Email: bico@uwaterloo.ca

Unit 502
20 Barrel Yards Blvd
Waterloo, Ontario N2L 0C3
Canada

Personal Data Born October 1957, New Jersey, USA

Research Interests

Integer programming and combinatorial optimization.

Degrees Obtained

BA (Mathematics) 1979, Rutgers University
MS (Operations Research) 1980, Stanford University
PhD (Combinatorics and Optimization), 1983, University of Waterloo

Employment Summary

June 2013 –: Professor, Combinatorics and Optimization, University of Waterloo. Appointed University Professor, June 2015.
September 2018 – December 2020: Professor, Applied Mathematics and Statistics, Johns Hopkins University.
January 2013 – May 2013 : John Swanson Professor, Industrial Engineering, University of Pittsburgh.
July 2002 – December 2012 : Chandler Family Chair Professor, Industrial and Systems Engineering, and Adjunct Professor, School of Mathematics, Georgia Tech.
September 2011 - July 2012: Visiting Professor, Operations Research and Financial Engineering, Princeton University.
September 2000 - July 2002: Visiting Professor, Program for Applied and Computational Mathematics, Princeton University.
January 1996 - July 2001: Noah Harding Professor, Computational and Applied Mathematics, Rice University.
August 1994 - December 1995: John von Neumann Professor, Research Institute for Discrete Mathematics, University of Bonn, Germany.
December 1988 - August 1994: Member of Technical Staff, Combinatorics and Optimization Research Group, Bell Communications Research.
July 1987 - December 1988: Associate Professor, Industrial Engineering and Operations Research and the Management Science Division of the Graduate School of Business, Columbia University.
August 1986 - June 1987: Visiting Associate Professor, Institut für Ökonometrie und Operations Research, Universität Bonn, Germany.
August 1985 - June 1987: Assistant Professor, School of Operations Research and Industrial Engineering, Cornell University.
September 1983 - July 1985: Alexander von Humboldt Research Fellow, Institut für Ökonometrie und Operations Research, Universität Bonn, Germany.

Prizes

2021 Amazon Last Mile Routing Research Challenge, First Prize, $100,000
2019 Humboldt Research Award, 60,000 Euro
2015 University Professor, University of Waterloo
2012 American Mathematical Society Fellow

2011 National Academy of Engineering
2011 Faculty of Mathematics Alumni Achievement Medal, University of Waterloo
2010 INFORMS Fellow
2009 SIAM Fellow
2007 Lanchester Prize, INFORMS
2003 I. E. Block Community Lecturer, SIAM
2000 Beale-Orchard-Hays Prize, Mathematical Programming Society
1998 International Congress of Mathematicians, invited 45-minute lecture

Editorial Duties

Editor-in-Chief and Founding Editor, *Mathematical Programming Computation*, Mathematical Optimization Society and Springer Verlag (2008–2014)
Editor-in-Chief, *Mathematical Programming, Series A* (2003–2007)
Editor-in-Chief, *Mathematical Programming, Series B* (1999–2003)
Area Editor, *INFORMS Journal on Computing* (2003–2007)
Associate Editor, *Mathematical Programming* (1990–2003)
Associate Editor, *INFORMS Journal on Computing* (1992–2003)
Associate Editor, *Mathematics of Operations Research* (1998–2013)
Editorial Board, *SIAM Journal on Discrete Mathematics* (1992–2009)
Editorial Board, *SIAM Journal on Optimization* (2006–2012; 2015–2020)
Editorial Board, *MPS/SIAM Series on Optimization* (2010–2013)
Editorial Board, *Algorithms and Combinatorics*, Springer Series (2010–present)
Advisory Board, *INFORMS Journal on Computing* (2018–present)
Editorial Board, *Vietnam Journal of Mathematics* (2012–present)

Research Funding

"Computational Studies in Discrete Optimization", $340,000 (Canadian), NSERC Discovery Grant (awarded also NSERC Accelerator Supplement), 2014–2019, Principal Investigator.

"Experimental Modules for Combinatorial Optimization and Mixed-Integer Programming", $209,280, Office of Naval Research, 2013–2015, Principal Investigator.

"Experimental Modules for Combinatorial Optimization and Mixed-Integer Programming", $1,035,427, Office of Naval Research, 2001–2012, Principal Investigator.

"Efficiently Computable Compressed Sensing", $945,809, Office of Naval Research (Basic Research Challenge), 2008–2012, with S. Ahmed, A. Nemirovski (Principal Investigator), and A. Shapiro.

"An Exact Rational Solver for Mixed Integer Programming", $341,319, National Science Foundation, 2007–2011, Principal Investigator.

"Local Cuts in Discrete Optimization and Mixed-Integer Programming", $375,000, National Science Foundation, 2003–2006, Principal Investigator.

"Correctness by Construction: Harnessing Computational Knowledge to Provide Correct, Efficient and Cost-Effective Software", $176,388 Subcontract, Office of Naval Research, 2002–2004, Principal Investigator.

"A Library for Network Optimization", $143,000, Texas Higher Education Coordinating Board, 2000–2001, Principal Investigator.

"Large Scale Mixed-Integer Programming", $83,000, Texas Higher Education Coordinating Board, 2000–2001, Principal Investigator.

"Computational Studies in Large-Scale Discrete Optimization", $39,278, Office of Naval Research, 1999, Principal Investigator.

"Mixed Integer Programming Optimization", $100,000 (Cash Gift) and $750,000 (Computing Equipment), Compaq Corporation, 1999–2000, Principal Investigator.

"A Cluster-Based Parallel Solver for Mixed-Integer Programming Problems", $169,125, Texas Higher Education Coordinating Board, 1998–1999, Principal Investigator.

"Center for Computational Discrete Optimization", $1,000,000, W.M. Keck Foundation, 1997, Director.

"A computational study of heuristic algorithms for mixed-integer programming", $93,000, Office of Naval Research, 1997–2000, Principal Investigator.

"Discrete Optimization", $221,919 (Computing Equipment), Intel Corporation, 1997–1999, Principal Investigator.

"Mixed Integer Programming Using Distributed Shared Memory on an Alpha-SMP Cluster", $435,000 (Computing Equipment), Digital Equipment Corporation, 1996, Co-Principal Investigator.

Program Committees

IPCO (2013, 2007, 2004, 2002–Chairman, 1998, 1996)
International Congress of Mathematicians, Panel (2014, 2006)
International Congress on Industrial and Applied Mathematics (2007)
International Symposium on Mathematical Programming (2006)
SIAM Conference on Discrete Mathematics (2004)
ACM-SIAM Symposium on Discrete Algorithms, SODA (2000, 1994)
European Symposium on Algorithms (1999)
ACM Symposium on Computational Geometry (1992)

Prize Committees

Junior Faculty Forum Paper Competition, INFORMS (2021)
INFORMS Prize (2019–2020)
Optimization Society Farkas Prize, INFORMS (2019–Chairman)
Optimization Society Khachiyan Prize, INFORMS (2017)
Lanchester Prize, INFORMS (2016–2017)
Fulkerson Prize, AMS and Mathematical Programming Society (2009–Chairman, 2000)
Beale-Orchard-Hays Prize, Mathematical Programming Society (2006, 2003–Chairman)
George Pólya Prize, SIAM (2004–Chairman)
Denis König Prize, SIAM (2010)
Computing Society Student Prize, INFORMS (2009)
Optimization Section Prize for Young Researchers, INFORMS (2000)

Professional Duties

Mathematical Optimization Society
    Chair (2013–2016), Vice-Chair (2012–2013, 2016–2018)
INFORMS Computing Society
    Chair (2012–2013), Vice-Chair (2010–2011)
National Academy of Engineering
    Temporary Nominating Committee on Foreign Member Diversity (2018–2020)
    Peer Committee, Industrial and Systems Engineering Section (2016–2019)
    Secretary, Industrial and Systems Engineering Section (2015–2017)
American Mathematics Society, Short Course Subcommitee (2013–2016)

SIAM Coordinating Committee for the Joint Mathematics Meetings (2012–2015)
Hausdorff Institute for Mathematics, Germany, Scientific Advisory Board (2006–2017)
LANCS Initiative in Operations Research, UK, Scientific Board (2008–2013)

Books

In Pursuit of the Traveling Salesman: Mathematics at the Limits of Computation, Princeton University Press, 2012.

The Traveling Salesman Problem: A Computational Study, with David L. Applegate, Robert E. Bixby, and Vašek Chvátal, Princeton University Press, 2006.

Combinatorial Optimization, with William Cunningham, William Pulleyblank, and Alexander Schrijver, John Wiley and Sons, New York, 1998.

Research Trends in Combinatorial Optimization, edited with László Lovász and Jens Vygen, Springer, 2009.

Integer Programming and Combinatorial Optimization, edited with Andreas S. Schulz, Springer, Berlin, 2002.

Combinatorial Optimization, edited with László Lovász and Paul Seymour, American Mathematical Society, 1995.

Polyhedral Combinatorics, edited with Paul Seymour, American Mathematical Society, 1990.

Published Papers

"Local search with learned constraints for last mile routing", in M. Winkenbach, S. Parks, and J. Noszek, editors. *Technical Proceedings of the 2021 Amazon Last Mile Routing Research Challenge*, MIT Libraries, 2021. pp. XXI.1–XXI.12.

"Computing in combinatorial optimization", in *Theories*, B. Steffen and G. J. Woeginger, editors. Lecture Notes in Computer Science 10000, Springer, 2019. pp. 27–47.

"The year combinatorics blossomed", with M. Grötschel and A. Schrijver, *ICIAM Intelligencer*, Springer (on the occasion of the ICIAM 2015 in Beijing).

"The traveling salesman problem", *The Princeton Companion to Applied Mathematics*, Princeton University Press, 2015, pp. 778–781.

"A hybrid branch-and-bound approach for exact rational mixed-integer programming", with T. Koch, D. E. Steffy, and K. Wolter, *Mathematical Programming Computation* 5 (2013) 305–344.

"Local cuts for mixed-integer programming", with V. Chvátal and D. Espinoza, *Mathematical Programming Computation* 5 (2013) 171–200.

"Maximum-weight stable sets and safe lower bounds for graph coloring", with S. Held, E. C. Sewell, *Mathematical Programming Computation* 4 (2012) 363–381.

"Markowitz and Manne + Eastman + Land and Doig = Branch and Bound", Documenta Mathematica, Extra Volume: *Optimization Stories*, 2012, pp. 221-226.

"An exact rational mixed-integer programming solver", with T. Koch, D. E. Steffy, and K. Wolter, in *Integer Programming and Combinatorial Optimization*, O. Günlük and G. J. Woeginger, editors. Lecture Notes in Computer Science 6655. Springer, 2011. pp. 104–116.

"Safe lower bounds for graph coloring", with S. Held, E. C. Sewell, in *Integer Programming and Combinatorial Optimization*, O. Günlük, G. J. Woeginger, editors. Lecture Notes in Computer Science 6655. Springer, 2011. pp. 261–273.

"Solving very sparse rational systems of equations", with D. Steffy, *ACM Transactions on Mathematical Software* 37 (2011), Number 4.

"Generalized domino-parity inequalities for the TSP", with D. Espinoza and M. Goycoolea, *Mathematics of Operations Research* 35 (2010) 479–493.

"Fifty-plus years of combinatorial integer programming", in *50 Years of Integer Programming 1958–2008*, M. Jünger et al., editors. Springer, 2010, pp. 387–430.

"Numerically safe Gomory mixed-integer cuts", with S. Dash, R. Fukasawa, and M. Goycoolea, *INFORMS Journal on Computing* 21 (2009) 641–649.

"Certification of an optimal TSP tour through 85,900 cities", with D. Applegate, R. Bixby, V. Chvátal, D. Espinoza, M. Goycoolea, and K. Helsgaun, *Operations Research Letters* 37 (2009) 11–15.

"Mathematical Programming Computation: A new MPS journal", with T. Koch, *Optima* 78 (2008), pages 1, 7, 8, and 11.

"rh_tsp_map 3.0: End-to-end radiation hybrid mapping with improved speed and quality control", with A. Schaeffer, E. Rice, and R. Agarwala, *Bioinformatics* 23 (2007) 1156–1158.

"Exact solutions to linear programming problems", with D. Applegate, S. Dash, and D. Espinoza, *Operations Research Letters* 35 (2007), 693–699.

"Computing with domino-parity inequalities for the TSP", with D. Espinoza and M. Goycoolea, *INFORMS Journal on Computing* 19 (2007) 356–365.

"Vasek Chvátal: A very short introduction", with D. Avis, A. Bondy, and B. Reed, *Graphs and Combinatorics* 23-Supplement (2007) 41–65.

"Implementing the Dantzig-Fulkerson-Johnson algorithm for large traveling salesman problems", with D. Applegate, R. Bixby, and V. Chvátal, *Mathematical Programming* 97 (2003) 91–153.

"Tour merging via branch-decomposition", with P. Seymour, *INFORMS Journal on Computing* 15 (2003) 233–248.

"Chained Lin-Kernighan for large traveling salesman problems", with D. Applegate and A. Rohe, *INFORMS Journal on Computing* 15 (2003) 82–92.

"Solution of a min-max vehicle routing problem", with D. Applegate, S. Dash, and A. Rohe, *INFORMS Journal on Computing* 14 (2002) 132–143.

"TSP cuts which do not conform to the template paradigm", with D. Applegate, R. Bixby, and V. Chvátal, in *Computational Combinatorial Optimization*, M. Jünger and D. Naddef, editors (Springer, 2001), pp. 261–304.

"On the matrix-cut rank of polyhedra", with S. Dash, *Mathematics of Operations Research* 26 (2001) 19–30.

"Computing minimum-weight perfect matchings", with A. Rohe, *INFORMS Journal on Computing* 11 (1999) 138–148.

"Computational experience with parallel mixed integer programming in a distributed environment", with R. Bixby, A. Cox, and E. Lee, *Annals of Operations Research* 90 (1999) 19–43.

"On the solution of traveling salesman problems", with D. Applegate, R. Bixby, and V. Chvátal, *Documenta Mathematica Journal der Deutschen Mathematiker-Vereinigung, International Congress of Mathematicians* (1998) 645–656.

"An implementation of the generalized basis reduction algorithm for integer programming", with T. Rutherford, H.E. Scarf, and D. Shallcross, *ORSA Journal on Computing* 5 (1993) 206–212.

"Solving large-scale matching problems", with D. Applegate, in *Algorithms for Network Flows and Matching*, D.S. Johnson and C.C. McGeoch, editors (American Mathematical Society, 1993), pp. 557–576.

"On integer points in polyhedra", with M. Hartmann, R. Kannan, and C. McDiarmid, *Combinatorica* 12 (1992) 27–37.

"A computational study of the job-shop scheduling problem," with D. Applegate, *ORSA Journal on Computing* 3 (1991) 149–156.

"Integral infeasibility and testing total dual integrality", with D.L. Applegate and S.T. McCormick, *Operations Research Letters* 10 (1991) 37–41.

"The discipline number of a graph", with V. Chvátal, *Discrete Applied Mathematics* 86 (1990) 191–198.

"Cutting-plane proofs in polynomial space", *Mathematical Programming* 47 (1990) 11–18.

"On the complexity of branch and cut methods for the traveling salesman problem", with M. Hartmann, in *Polyhedral Combinatorics*, W. Cook and Paul Seymour, editors (American Mathematical Society, 1990), 75–82.

"Chvátal closures for mixed integer programming problems", with R. Kannan and A. Schrijver, *Mathematical Programming* 47 (1990) 155–174.

"On cutting-plane proofs in combinatorial optimization", with V. Chvátal and M. Hartmann, *Linear Algebra and Its Applications* 114/115 (1989) 455–499.

"Linear systems for constrained matching problems", with W.R. Pulleyblank, *Mathematics of Operations Research* 12 (1987) 97–120.

"On the complexity of cutting-plane proofs", with C. Coullard and Gy. Turan, *Discrete Applied Mathematics* 18 (1987) 25–38.

"On box totally dual integral polyhedra", *Mathematical Programming* 34 (1986) 48–61.

"An integer analogue of Caratheodory's theorem", with J. Fonlupt and A. Schrijver, *Journal of Combinatorial Theory (Series B)* 40 (1986) 63–70.

"Sensitivity theorems in integer linear programming", with A.M.H. Gerards, A. Schrijver, and E. Tardos, *Mathematical Programming* 34 (1986) 252–264.

"A note on matchings and separability", Discrete Applied Mathematics 10 (1985) 202–209.

"A polynomial-time test for total dual integrality in fixed dimension", with L. Lovász and A. Schrijver, *Mathematical Programming Study* 22 (1984) 64–69.

"A minimal totally dual integral defining system for the b-matching polyhedron", *SIAM Journal of Algebraic and Discrete Methods* 4 (1983) 221–230.

"Operations that preserve total dual integrality", *Operations Research Letters* 2 (1983) 31–35.

Research Papers

"A parallel cutting-plane algorithm for the vehicle routing problem with time windows", with J. L. Rich, Technical Report, Rice University, 1999.

"Finding tours in the TSP", with D. Applegate, R. Bixby, and V. Chvátal, Computational and Applied Mathematics Technical Report TR99-05, Rice University, May 1999.

"Finding cuts in the TSP", with D. Applegate, R. Bixby, and V. Chvátal, DIMACS Technical Report 95-05, March, 1995.

"An algorithm for the ring-routing problem", with P.D. Seymour, Bellcore Technical Memorandum, December, 1993.

"Integer programming solutions for capacity expansion of the local access network", Bellcore Technical Memorandum, TM-ARH-017914, November, 1990.

Ph.D. Students

Kenneth Chen, 2011, Georgia Tech, currently at Qualcomm, Inc.

Daniel E. Steffy, 2010, Georgia Tech, currently tenure-track Assistant Professor, Oakland University.

Ricardo Fukasawa, 2008, Georgia Tech, currently Associate Professor with tenure, University of Waterloo, Canada.

Torsten Inkmann, 2007, Georgia Tech (Co-Advised with Dr. Robin Thomas), currently at INFORM, Inc.

Marcos Goycoolea, 2006, Georgia Tech, currently Associate Professor with tenure, Universidad Adolfo Ibáñez, Santiago, Chile.

Daniel Espinoza, 2006, Georgia Tech, currently at Gurobi Optimization.

William Christian, 2003, Rice University, currently Research Staff Member, National Security Agency.

Sanjeeb Dash, 2001, Rice University, currently Research Staff Member, IBM T. J. Watson Research Center.

Illya V. Hicks, 2000, Rice University, currently Full Professor with Tenure, Rice University.

Jennifer L. Rich, 1999, Rice University, currently at Aspen Technology, Inc.

Mark Hartmann, 1989, Cornell University, formally Associate Professor with Tenure, University of North Carolina.

Selected Plenary and Keynote Lectures

IFORS Distinguished Lecturer, EURO 2019 (June 25, 2019)
MAA Invited Address, Joint Mathematics Meetings (January 11, 2018)
Canadian Mathematics Society Winter Meeting (December 10, 2017)
London Mathematical Society, Presidential Invited Address (November 13, 2015)
IIE Annual Conference (May 31, 2014)
SIAM Invited Address, Joint Mathematics Meetings (January 7, 2011)
German Mathematical Society Annual Meeting (September 15, 2008)
18th International Symposium on Mathematical Programming, Opening Plenary Lecture (August 18, 2003)
I. E. Block Community Lecture, SIAM Annual Meeting (June 18, 2003)
IMA Public Lecture, Minneapolis (October 16, 2002)
INFORMS National Meeting (November 5, 2001)
International Congress of Mathematicians (August 21, 1998), (45 minute lecture, given jointly in Section 16, Applications and in Section 17, Control Theory and Optimization)
SIAM Conference on Discrete Mathematics (July 13, 1998)
Euler Institute for Discrete Mathematics and its Applications, Eindhoven, The Netherlands (June 9–13, 1997), *Series of ten lectures*
15th International Symposium on Mathematical Programming, Opening Plenary Lecture (August 15, 1994)
Summer School on Combinatorial Optimization, Maastricht (August 9–13, 1993), *Series of four lectures*
1993 SIAM Annual Meeting (July 16, 1993)
SIAM Conference on Discrete Mathematics (June 10, 1992)

Invited Lectures (since 1990)

Math Encounters, National Museum of Mathematics (August 4, 2021)
CanaDAM, Public Interest Lecturer (May 31, 2019)
Northwestern University, Wasserstrom Lecture (April 2, 2019)
NETOPT2019 Winter School, Lisbon, Portugal (January 18, 2019)
Baylor University, Undergraduate Lecture Series (November 15 and 16, 2018)
Banff International Research Station (September 24, 2018)
CAIMS Annual Meeting 2018, Plenary Lecture (June 6, 2018)
Hokkaido University (May 10, 2018)
International Conference on HPC, Hanoi, Vietnam, Plenary Lecture (March 23, 2018)
Rice University (March 8, 2018)
Johns Hopkins University, Goldman Distinguished Lecture (February 22, 2018)
Lehigh University, Spencer Schantz Lectures (November 29 and 30, 2017)
University of Michigan (November 1, 2017)
University of Grenoble (September 4, 2017)
8th Cargese Workshop on Combinatorial Optimization (August 29 and 30)
MIP 2017 (June 19, 2017)
NemFest, Georgia Tech (May 11, 2017)
Fields-Carleton Lectures (April 6 and 7, 2017)
INOC 2017, Lisbon, Portugal (February 28, 2017)
ACO25, Georgia Tech (January 9, 2017)
Kyoto University (June 13, 2016)
University of Toronto (March 11, 2016)
DIAMANT Symposium, Lunteren, (November 27, 2015)
OR2015, Vienna, Semi-Plenary Lecture, (September 2, 2015)
MIT, Operations Research Center (April 30, 2015)
MAA Michigan Mathematics Meetings, Opening Plenary Lecture (April 10, 2015)
Universidad Adolfo Ibáñez, Santiago (December 3, 2014)
University of Chile, Santiago (July 17, 2014)
Kyoto University (June 10 and June 12, 2014)

Google Research, New York City (April 14, 2014)
University of Wisconsin-Madison, Hilldale Lecture (April 7, 2014)
United States Military Academy, West Point (February 19, 2014)
University of Bonn (July 8, 2013)
RaviKannan60 Workshop, Carnegie Mellon (May 24, 2013)
Penn State, Martin J. Kudroff Memorial Lecture (March 26, 2013)
University of Chile (March 13, 2013)
McGill University (November 2, 2012)
Macalester College, Mathematics and Society Speaker Series (October 3, 2012)
43rd Italian Operational Research Society Conference (September 20, 2012)
University of Pittsburgh (July 12, 2012)
CAARMS18, Princeton (June 29, 2012)
University of Waterloo (June 11, 2012)
University of California, Davis, Spring Mathematics Colloquium (May 30, 2012)
Cornell University (May 24, 2012)
United States Military Academy, West Point (March 22, 2012)
Concordia University, Montreal, Public Lecture (March 19, 2012)
Princeton University (February 17, 2012)
Rutgers University, Newark (February 13, 2012)
University of Bonn (January 27, 2012)
University of Alabama in Huntsville, Karen Ames Memorial Lecture (January 13, 2012)
Rutgers University (November 28, 2011)
Furman University, Clanton Lecture Series (November 3, 2011)
University of Waterloo (September 19, 2011)
Carnegie Mellon University (March 3, 2011)
Kyoto Prize Satellite Workshop, Tokyo (November 17, 2010)
IPAM Workshop in Discrete Optimization, UCLA (October 26, 2010)
London School of Economics (May 19, 2010)
Lancaster University (May 17, 2010)
Princeton University, ORFE Colloquium (April 20, 2010)
McGill University (March 12, 2010)
Columbia University (February 9, 2010)
Princeton University, Lunch 'n Learn Series (December 16, 2009)
Oberlin College, 2009 Vance Lecture (November 11, 2009)
University of Bonn (August 7, 2009)
Tapia 70th Birthday Conference, Houston (May 30, 2009)
Princeton University, Discrete Mathematics Seminar (April 9, 2009)
University of Bonn (June 13, 2008)
New Directions in Algorithms, Combinatorics, and Optimization, Atlanta (May 6, 2008)
Columbia University (April 29, 2008)
McGill University, Computer Science Colloquium (March 14, 2008)
University of Bonn (January 24, 2008)
50 Years of Integer Programming, Aussois (January 7, 2008), one-hour survey
40th Annual Meeting of the Society for Mathematical Psychology, University of California, Irvine (July 27, 2007), keynote address
C&O@40, University of Waterloo (June 20, 2007), semi-plenary lecture
KyotoCGGT 2007, Kyoto (June 12, 2007), plenary lecture
Mathematical Research Institute, Oberwolfach (May 8, 2007), one-hour survey
University of Waterloo (March 19, 2007)
Ottawa-Carleton Discrete Mathematics Days (May 13, 2006)
Cornell University (November 29, 2005)
GERAD, Montreal (October 14, 2004)
Optimization 2004, Lisbon, (July 26, 2004), opening plenary lecture
Combinatorial Optimization 2004, Lancaster (March 28, 2004), opening plenary lecture

Lehigh University, Industrial Engineering Colloquium (November 12, 2003)
XXXV Brazilian Symposium on Operations Research (November 6, 2003)
University of Montana, Mathematics Colloquium (September 11, 2003)
Big Sky Conference, Montana, Keynote Address (September 11, 2003)
Eurocomb'03, Prague (September 8, 2003)
ROUTE 2003 Workshop, Copenhagen (June 23, 2003)
MIT, HPCES Distinguished Speakers Series (April 23, 2003)
University of North Carolina, Chapel Hill (April 10, 2003)
Integer Programming in honor of Egon Balas, Carnegie Mellon (June 4, 2002)
Foundations of Computational Mathematics, Minneapolis (August 5, 2002), semi-plenary lecture
Carnegie Mellon University (February 28, 2002)
26th Lunteren Meeting on Mathematics of Operations Research (January 15 and 16, 2002)
8th ARCO Workshop, Copenhagen (January 14, 2002)
1st Columbia Optimization Day (November 28, 2001)
Lucent Technologies, Bell Laboratories (May 17, 2001)
Georgia Tech (May 3, 2001)
Novel Approaches to Hard Discrete Optimization, Waterloo (April 26, 2001), opening plenary lecture
Ohio State University, Discrete Mathematics Seminar (April 19, 2001)
Ohio State University, Mathematics Colloquium (April 19, 2001)
Fordham University, Mathematics and Computer Science Colloquium (March 20, 2001)
32nd Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Baton Rouge (March 2, 2001), series of two plenary lectures
IBM Watson Research Lab, Director's Series Lecture (February 12, 2001)
Telcordia, Information and Computer Science Seminar (February 2, 2001)
University of Bonn (July 15, 2000)
Foundations of Computational Mathematics, Oxford (July 23, 1999)
University of Bonn (July 8, 1999)
SIGOPT Conference on Optimization, Trier (March 23, 1999)
Yale University (March 4, 1999)
Princeton University (February 9, 1999)
Large-scale Discrete Optimization in Logistics, DIMACS (February 8, 1999)
1998 Research Conference on Computational Biology, Galveston (November 20, 1998)
Oakland University (October 27, 1998)
AT&T Laboratories (October 20, 1998)
University of Bonn (July 23, 1998)
16th International Symposium on Mathematical Programming (August 27, 1997)
Princeton University (April 21, 1997)
28th Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton (March 5, 1997), series of two plenary lectures
Georgia Tech (January 28, 1997)
Mathematical Research Institute, Oberwolfach (January 7, 1997)
London School of Economics (June 28, 1995)
Max-Planck-Institute, Saarbrücken (June 27, 1995)
19th Lunteren Meeting on Mathematics of Operations Research (January 10 and 12, 1995)
Han-sur-Lesse, Belgium (December 9, 1994)
University of Augsburg (December 6, 1994)
Supercomputing Research Center, Washington (November 1, 1993)
Australian Society for O.R. 12th National Conference, Adelaide (July 7, 1993), plenary lecture
ASOR-IBM Seminar on Decision Systems in Transportation, Sydney (July 5, 1993)

Waterloo 92 Conference, Waterloo, (June 24, 1992), plenary lecture
University of Bonn (May 21, 1992)
Center for Operations Research and Econometrics, Brussels (May 8, 1992)
Workshop on Increasing Returns, Santa Fe Institute (March 22, 1992)
DIMACS Challenge Workshop (October 16, 1991)
Brown University (July 18, 1991)
Canadian Mathematical Society Summer Meeting, Sherbrooke (June 1, 1991)
Campinas Combinatorics Workshop, Brazil (May 21 and 23, 1991)
New York University (April 5, 1991)
International meeting on Sets, Graphs, and Numbers, Budapest (January 22, 1991)
Mathematical Research Institute, Oberwolfach (January 15, 1991)
Rice University (November 12, 1990)
IBM Watson Research Center (October 25, 1990)
University of Bonn (August 16 and 17, 1990)
University of Waterloo (June 1, 1990)
Rice University (April 22, 1990)
Yale University (February 23, 1990)
14th Lunteren Meeting on Mathematics of Operations Research (January 16 and 17, 1990)