

Birthdate: 19 June 1943

Education: A.B., Summa Cum Laude, Math., Dartmouth College, 1964
M.S., Mathematics, Stanford University, 1967
Ph.D., Mathematics, Stanford University, 1968

Current Positions:

Professor II of Mathematics, Rutgers University, 1981 ...
Director, Center for Discrete Mathematics and Theoretical Computer Science (DIMACS) (a Consortium of Princeton, Rutgers, AT&T Labs, Bell Labs, NEC Research Institute and Telcordia Technologies), 1/96 ...
Director, Homeland Security Center for Dynamic Data Analysis (DyDAn) (a consortium of Rutgers, Princeton, Rensselaer Polytechnic Institute, Texas Southern University, Texas State University-San Marcos, AT&T Labs, and Bell Labs, 10/06 ...
Director, Homeland Security Center of Excellence for Command, Control, and Interoperability (a consortium of Rutgers, Carnegie-Mellon U., Howard U., Morgan State U., Princeton U., Rensselaer Polytechnic Institute, U. of Illinois-Urbana Champaign, University of Southern California, AT&T Labs, Bell Labs, Geosemble Technologies, with partners at Texas Southern University and U-MASS Lowell), April 2009...
Fellow (Member), Rutgers Center for Operations Research, 1982 ...
Member of Graduate Faculties in Mathematics, Operations Research, Computer Science, Computational Molecular Biology, Computational Biology and Molecular Biophysics, Industrial and Systems Engineering and Education...
Chair, Rutgers University Homeland Security Research Initiative (RUHSRI), 2003 ...

Past Positions:

Postdoctoral Fellow in Mathematical Psychology, Dept. of Psychology, Univ. of Pennsylvania, 2-68/6-68
Professional Staff, Dept. of Math., The RAND Corp., Santa Monica, CA, 6-68/9-71
Inst. for Advanced Study, Princeton, NJ, 9-71/8-72
Asso. Professor of Mathematics, Rutgers University, 1972/76
Professor of Mathematics, Rutgers Univ., 1976/81
Visiting Professor, School of Operations Research & Indus. Engr., Cornell Univ., Ithaca, NY, 1979/80
Director, Rutgers Center for Operations Research, 1982/83
Visitor, AT&T Bell Laboratories, Murray Hill, NJ 9-86/1-87 and 10-87/2-88
Associate Director, Center for Discrete Mathematics and Theoretical Computer Science (DIMACS), 7-89/8-92.
Robert G. Stone Visiting Professor of Mathematics (part-time), Northeastern University, 1-90/6-95.
Acting Director, Center for Discrete Mathematics and Theoretical Computer Science (DIMACS), 1-91/6-91, 8-92/8-93.

Major Research Interests:

Mathematical models in the social, behavioral, biological and environmental sciences and of problems of communications and transportation; graph theory and combinatorics; measurement theory; operations research; utility, decisionmaking, and social choice; mathematical modeling and decisionmaking for homeland security.

Honors and Awards:

Daniel Webster National Scholar, 1961/64
 Woodrow Wilson Fellow, 1964/65
 Carl N. Jacobs Lecturer, Univ. of Wisconsin, Stevens Point, 1975
 Sigma Xi Lecturer, Swarthmore College, 1976
 CBMS-NSF Research Conference Lecturer, Colby College, 1977
 Nominated for President of SIAM (Society for Industrial and Applied Mathematics),
 1981 (lost the election)
 Outstanding Mathematician Lecturer, Univ. of New Haven, 1983
 Humboldt Fellowship (declined), 1984
 Elected Vice President of SIAM, 1984, 1986
 ACM/SIGACT Distinguished Service Prize, 1999
 University Research Initiative Award, Air Force Office of Scientific Research, 1989-1993
 Robert G. Stone Chair, Northeastern University, 1990-95.
 NSF Science and Technology Centers Pioneer Award from National Science Foundation,
 2001.
 Commemorative Medal of the Union of Czech Mathematicians and Physicists, Mathe-
 matics Research Section, October 2003
 NSF Grants, 1972-1979, 1983-
 AFOSR Grants, 1979-1983, 1985-1996
 ONR Grants, 1993-2003, 2005-
 NCHGR Grants, 1995-98
 NSA Grants, 1995-2003, 2006, 2008
 DARPA Grants, 1996-2001
 Sloan Foundation Grants, 1999-2004
 AT&T Foundation Grant, 2000-2004
 Burroughs Wellcome Fund Grants, 2002-2004, 2006

Current Grants:

“Three Special Focus Programs at DIMACS”
 NSF (CCR), \$900,000
 September 1, 2000 - August 31, 2008
 “ISI 2007”
 NSF (EIA), \$10,000
 August 15, 2001 - June 30, 2008
 “Travel Support for US Participation in Joint EU/NSF Strategic Workshops”
 NSF (EIA), \$344,052
 August 15, 2001 - July 31, 2008
 “World Science Forum”
 NSF (EIA), \$15,000
 August 15, 2001 - December 31, 2008
 “ITR: Special Focus on Computer Science and Epidemiology”
 NSF (EIA), \$2,750,000
 September 1, 2002-August 31, 2008
 “DIMACS-DIMATIA International REU Program”
 NSF (EIA), \$654,305
 May 15, 2002-April 30, 2008

- “Monitoring Message Streams”
NSF (CCR), \$2,047,523
July 1, 2002-August 31, 2008
- “Author Identification”
NSF (CCR), \$239,500
July 1, 2002-August 31, 2008
- “Mining Multilingual Resources Using Text Analysis”
NSF (CCR), \$749,959
July 1, 2002 - August 31, 2008
- “DIMACS Special Focus on Communication Security and Information Privacy”
NSF (CCR), \$350,000
August 15, 2003 - July 31, 2008
- “DIMACS Special Focus on Computation and the Socio-Economic Sciences”
NSF (SES), \$225,000
April 1, 2004 - March 31, 2008
- “Special Focus on Information Processing in Biology”
NSF (CCF), \$285,000
September 1, 2004 - August 31, 2008
- “Workshop on Computational Tumor Modeling”
NSF (CCF), \$23,900
September 1, 2004 - August 31, 2008
- “Partnering Teachers in the Biological and Mathematical Sciences”
NSF (CCR), \$86,976
March 15, 2005 - August 31, 2008
- “ D^3 : New Directions, Dimensions, and Domains for Computer Science”
NSF (CNS), \$811,271
June 1, 2005 - May 31, 2010
- “Insightful Understanding of China’s Higher Education and Research in Computer Science and Information Technology”
NSF (CNS), \$125,000
June 1, 2005 - May 31, 2010
- “Workshops Connecting Theoretical CS to Other Fields”
NSF (CCF), \$300,000
June 15, 2005 - May, 31, 2008
- “A Decision Logic Approach to the Port-of-Entry Inspection Problem”
NSF (SES), \$599,999
July 1, 2005 - June 30, 2008
- “DIMACS/Georgia Tech Special Focus on Discrete Random Systems”
NSF (DMS), \$191,500
August 1, 2006 - July 31, 2008
- “DNA Barcode Data Analysis Initiative: Tools for a New Generation of Biodiversity Data”
NSF (DBI), \$27,842
September 1, 2006 - August 31, 2008
- “Mathematical Modeling of Infectious Diseases in Africa: A Shortcourse”
NSF (ISE), \$122,048
September 1, 2006 - August 31, 2008
- “University-Industry Postdoctoral Fellow in Telecom/Combinatorics and Optimization”
NSF (DMS), \$71,000
September 1, 2006 - August 31, 2008
- “The Bio-Math Connection”

- NSF (ESI), \$2,550,001
October 15, 2006 - September 30, 2011
- “The Center for Dynamic Data Analysis for Homeland Security”
ONR, \$3,000,000
October 16, 2006 - October 15, 2009
- “Optimization Problems of Detection Systems”
ONR, \$224,863
November 20, 2006 - January 31, 2010
- “REU Site: DIMACS/DIMATIA U.S./Czech International REU Program”
NSF (CFF), \$390,000
February 15, 2007 - January 31, 2010
- “Workshop on Recent Advances in Mathematics and Information Sciences for Analysis and Understanding of Massive and Diverse Sources of Data”
ONR, \$20,046
April 2, 2007 - April 2, 2008
- “Second US-China Computer Science Leadership Summit”
NSF (CNS), \$99,971
September 1, 2007 - August 31, 2008
- “ARI-MA: Sensor Management Problems of Nuclear Detection”
NSF (CBET), \$485,767
September 1, 2007 - August 31, 2008
- “DyDAn Fellowship Program in Homeland Security at Rutgers University”
DHS, \$499,950
September 1, 2007 - September 29, 2010
- “DIMACS Special Focus on Algorithmic Foundations of the Internet”
NSF (CNS), \$280,917
October 1, 2007 - September 30, 2010

Noteworthy Talks:

- SIAM National Meeting invited address, Cal. Tech., 1974
 Sigma Xi lecture, Swarthmore, 1976
 CBMS-NSF Research Conference lecturer, Colby College, 1977
 Mathematical Asso. of America National Meeting, invited address, Biloxi, 1979
 International Congress on Math. Education, Berkeley, 1980
 Outstanding Mathematician Lectures, Univ. of New Haven, 1983
 International Symposium on Operations Research, Osnabruck, W. Germany, 1984.
 Beijing Mathematical Society, 1985
 Southeastern Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, FL, 1987.
 First International Symposium on Combinatorics, Seoul, S. Korea, 1995 (series of two plenary lectures).
 Royal Nepal Academy of Science and Technology, Kathmandu, Nepal, 1998.
 Distinguished Computer Science Lecture Program, New York Academy of Science, 2001.
 Rota Lecture at Conference on Interconnections among Codes, Designs, Graphs and Molecular Biology, Hsinchu, Taiwan, 2002.
 American Mathematical Society Congressional Briefing: "Homeland Security: What Can Mathematicians Do?" Washington, DC, 2004.
 EUROXXI (21st European Conference on Operations Research sponsored by the Association of European Operational Research Societies, EURO), Reykjavik, Iceland, July 2006.
 40th Southeastern Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, Florida, March 2009.

Special Lecture Series:

- Cornell University (10 lectures on Mathematical Models in Environmental Science), 1973
 Colby College (10 lectures on Graph Theory and its Applications to Problems of Society), 1977
 The Citadel (10 lectures on Discrete Mathematical Models in the Social, Biological and Environmental Sciences), 1978
 Allegheny College (4 lectures on Graph-theoretical Models of Problems of Society), 1979
 Western Maryland College (4 lectures on Applications of Graph Theory), 1981
 Associated Colleges of Central Kansas (4 lectures on Applications of Discrete Mathematics), 1985
 ORSA National Meeting, Boston (6 lectures on Applications of Graph Theory), 1985
 Academia Sinica, Beijing (4 lectures), 1985
 Jilin Univ. of Technology, Changchun, China (8 lectures), 1985
 Claremont Graduate School (6 lectures on Applications of Discrete Mathematics), 1986
 Florida Atlantic University (4 lectures), 1987
 Le Troisieme Cycle Romand in Operations Research, Grimentz, Switzerland (14 lectures), 1988
 Jackson State University (3 lectures on Graph Theory and its Applications), 1990
 William Paterson College (4 lectures on Graph Theory and its Applications), 1992
 DIMACS Working Group Meeting on Order-theoretic Aspects of Epidemiology, (6 hours of lectures on The Theory of Measurement and its Applications), 2005.

MAA Mathfest, Knoxville, TN (2 hours of lectures on Measurement of Pollution at Short Course in Environmental Modeling), 2006.

Invited Addresses:

Bay Area Colloquium in the Philosophy and Methodology of Science, Berkeley, 1967
 NSF Workshop on Perceptual Geometries, Miami, 1970
 Mathematics Asso. of Two-Year Colleges of NJ, Fall Meeting, Camden County College, 1972
 SIMS (SIAM Inst. for Mathematics and Society) Mtg., Sterling Forest, NY, 1973
 Organization for Economic Cooperation & Development Seminar on Structural Analysis, Paris, 1973
 SIAM Nat'l Meeting, Cal Tech, 1974
 New York Academy of Sciences, 1974
 National Asso. of Independent Schools Convention, Atlantic City, New Jersey, 1975
 Asso. of Math. Teachers of NJ, Caldwell College, 1975
 SIMS Research Applications Conference on Energy, Alta, Utah, 1975
 National Council of Teachers of Mathematics, New York, 1975
 Indiana Univ. Workshop on Applied Mathematics, 1975
 Mathematical Asso. of America, Philadelphia Section, Gettysburg College, 1976
 Internat'l Conference on Graph Theory and its Applications, Western Michigan University, 1976
 Mathematical Asso. of America, Ohio Section, Marshall Univ., 1976
 New York Academy of Sciences, 1977
 NY Academy of Sciences, Internat'l Conference on Combinatorial Mathematics, 1978
 Math. Asso. of America, National Meeting, Biloxi, MS, 1979
 Math. Asso. of America, Texas Section, Texas Tech Univ., 1979
 Math. Asso. of America, Allegheny Mountain Section, Westminster College, 1979
 SIAM, Southeastern Atlantic Section, Univ. of Alabama, Birmingham, 1980
 Internat'l Conference on Graph Theory and its Applications, Western Michigan Univ., 1980
 Internat'l Congress on Mathematics Education, Berkeley, 1980
 Math. Asso. of Two-Year Colleges of NJ, Fall Meeting, Trenton State College, 1980
 Workshop on Fundamental Logical Concepts of Measurement, Turin, Italy, 1983
 Internat'l Conference on Math. Psychology, Brussels, 1983
 Internat'l Conference on Graph Theory and its Applications, Western Michigan Univ., 1984
 NATO Conference on Graphs and Orders, Banff, 1984
 Internat'l Symposium on Operations Research, Osnabruck, West Germany, 1984
 Math. Asso. of America, Northeastern Sect., Springfield, MA, 1984
 NY Academy of Sci., Internat'l Conf. on Combinatorial Math., 1985
 Beijing Mathematical Society, 1985
 Math. Asso. of America, NJ Section, Hoboken, 1986
 Advanced Research Inst. in Discrete Applied Math., New Brunswick, New Jersey, 1986
 Eric F. Gardner Conference (NY/Ontario Measurement and Statistics Conference), Rochester, NY, 1986
 Southeastern Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, FL, 1987
 Math. Asso. of America, Florida Section, Boca Raton, FL, 1987

- Math. Asso. of America, Allegheny Mountain Section, Erie, PA, 1987
- First International Colloquium on Pseudo-Boolean Optimization and Related Areas, Chexbres, Switzerland, 1987
- Workshop on Applications of Combinatorics and Graph Theory in the Biological and Social Sciences, Institute for Mathematics and its Applications, University of Minnesota 1988 (2 lectures)
- Internat'l Conf. on Graph Theory and its Applications, Western Michigan Univ., 1988
- Graph Theory Day, New York Academy of Sciences, New York, 1988
- Workshop on Measurement Theory, Center for Advanced Study in the Behavioral Sciences, Palo Alto, California, 1988 (2 lectures)
- Conference on Applications of Graph Theory to Computer Science and Other Fields, New Mexico State University, Las Cruces, 1989
- Hartford Conference on the First Two Years: Teaching the Mathematical Core, University of Hartford, 1989
- Sixth Annual Rose-Hulman Conference on Undergraduate Mathematics, Rose-Hulman Institute of Technology, Terre Haute, Indiana, 1989, (2 lectures)
- AFOSR Day, Air Force Office of Scientific Research, DC, 1989
- Spring Meeting, Mathematical Association of America, New Jersey Section, and American Mathematical Association of Two Year Colleges of New Jersey, Princeton University, 1990.
- First Alaska Graph Theory Conference: Quo Vadis Graph Theory, Fairbanks, Alaska, 1990.
- Workshop on Graph Labellings, Northeastern University, Boston, 1991.
- DIMACS/RUTCOR Workshop on Combinatorial Optimization in Science and Technology, New Brunswick, NJ, 1991.
- Math. Asso. of America, Eastern Pennsylvania/Delaware Section, LaSalle College, Philadelphia, 1991.
- SIAM, Southeast Atlantic Section Spring Meeting, Western Carolina University, Cullowhee, NC, 1991.
- Sixth Clemson Miniconference on Discrete Mathematics, Clemson University, Clemson, SC, 1991.
- Internat'l Conf. on Graph Theory and its Applications, Western Michigan University, 1992.
- European Mathematical Psychology Group, Brussels, Belgium, 1992
- Math. Asso. of America, Seaway Section, Ithaca, New York, 1992
- Conference on Graphs and Matrices, Boulder, Colorado, 1993.
- International Conference on Ordinal Data Analysis, University of Massachusetts, Amherst, 1993.
- New York Academy of Sciences Graph Theory Day, Bard College, Annandale-on-Hudson, New York, 1993.
- First International Symposium on Combinatorics, Seoul, S. Korea, 1995 (series of two plenary lectures)
- Math. Asso. of America, NJ Section, Cranford, NJ, 1996.
- International Conference on Graph Theory, Combinatorics, Algorithms, and Applications, Kalamazoo, MI, 1996.
- European Special Interest Group in Multicriteria Analysis (ESIGMA), annual meeting, Brussels, Belgium, 1996.
- International Conference on Ordinal and Symbolic Data Sets, Darmstadt, Germany,

1997

International Conference on the Future of Discrete Mathematics, Stirin Castle, Czech Republic, 1997.

International Workshop on Graph Colouring and Applications, Montreal, May 1997

Cumberland Conference on Combinatorics, Graph Theory, and Computing, Johnson City, Tennessee, 1998

Royal Nepal Academy of Science and Technology, Kathmandu, Nepal, 1998.

International Conference on Ordinal and Symbolic Data Analysis, Amherst, MA, 1998.

DIMACS Miniworkshop on Mathematical and Computational Approaches to Elections, 1999.

DIMACS Research and Education Institute, 1999.

International Conference on Combinatorial and Computational Mathematics, Pohang, Korea, 2000.

International Conference on Graph Theory, Combinatorics, Algorithms, and Applications, Kalamazoo, MI, 2000.

DIMACS Connect Institute, 2000.

International Conference 2000 – The Year of Mathematics (on the occasion of the 50th anniversary of the Mathematical Institute of the Hungarian Academy of Sciences and the 150th Anniversary of the Academy), Budapest, 2000.

DIMACS Workshop on Bioconsensus, 2000.

Clemson Miniconference on Discrete Mathematics, Clemson, SC, 2000.

DIMACS Connect Institute, 2001.

DIMACS Workshop on Bioconsensus II, 2001.

Conference on Interconnections among Codes, Designs, Graphs, and Molecular Biology, Hsinchu, Taiwan, 2002.

DIMACS Workshop on Labelings and Numberings of Graphs, 2002.

DIMACS Connect Institute, 2002.

West Point Conference on Discrete Mathematics, 2002.

DIMACS Connect Institute, 2003.

International Conference on Ordinal and Symbolic Data Analysis, Irvine, California, 2003.

DIMACS-DIMATIA-Renyi Working Group Meeting on Graph Colorings and their Generalizations, 2003.

Conference on Good Ideas in Teaching Precalculus and ..., Rutgers University, 2004.

Mathematical Association of America, NJ Chapter, 2004.

DIMACS-DIMATIA-Renyi Working Group Meeting on Algebraic and Geometric Methods in Combinatorics, Budapest, 2004.

Society for Mathematical Psychology Annual Meeting (Falmagne Festschrift), Ann Arbor, MI, 2004.

Workshop on Computer Science and Decision Theory, Paris, 2004.

DIMACS Bio-Math Connect Institute, 2004.

Workshop on Graph Colorings and their Generalizations, Renyi Institute, Budapest, Hungary, 2005.

DIMACS Bio-Math Connect Institute, 2005.

Conference on Mathematical Methods in Counter-terrorism, Columbia, SC, 2005

Conference on Probabilistic Combinatorics and Algorithms: A Conference in Honor of Joel Spencer's 60th Birthday, 2006.

DIMACS/DIMATIA/Renyi Combinatorial Challenges Conference, 2006.

- Combinatorial Challenges 2006 (A Meeting in Celebration of Pavol Hell's 60th Birthday), Victoria, BC, Canada, 2006.
- EUROXXI (21st European Conference on Operations Research sponsored by the Association of European Operational Research Societies, EURO), Reykjavik, Iceland, July 2006.
- DIMACS Bio-Math Connect Institute, Broomfield, CO, July 2006.
- Workshop on Facing the Challenge of Infectious Diseases in Africa: The Role of Mathematical Modeling, Johannesburg, South Africa, September 2006.
- Workshop on Voting Theory and Preference Modeling, University of Paris - Dauphine, October 2006
- Plenary talk at Mathematical Association of America, Allegheny Mountain Section, April 2007.
- Workshop on Mathematical Modeling of Infectious Diseases in Africa, Stellenbosch, South Africa, June 2007.
- DIMACS BioMath Connection Field Testers Workshop, July 2007.
- DIMACS BioMath Connection Field Testers Workshop, July 2008
- Plenary talk at European Mathematical Psychology Group meeting, Luxembourg, September 2007.
- Minisymposium on Discrete Sciences Applications in Homeland Security, Rutgers University, September 2007.
- Math Awareness Month Workshop on Mathematics and Voting Theory, New Jersey City University, April 2008.

Invited Lecture Series:

- Five lectures on "Mathematics and the Social Sciences," Math. Asso. of Two-Year Colleges of NJ, Middlesex County College, 1973
- Ten lectures on "Mathematical Models in Environmental Science," Cornell Univ., 1973
- Ten Lectures on "Graph Theory and its Applications to Problems of Society," an NSF-CBMS Research Conf., Colby College, 1977
- Ten lectures on "Discrete Mathematical Models in the Social, Biological and Environmental Sciences," The Citadel, 1978
- Ten lectures on "Mathematical Models and Contemporary Problems," MD-DC-VA Sect. of the MAA, Salisbury State College, 1978
- Four lectures on "Graph-theoretical Models of Problems of Society", Allegheny College, 1979
- Four lectures on "Applications of Graph Theory", Western Maryland College, 1981
- Five lectures on "Graph Theory Models in the Social Sciences and Group Decisionmaking," Sloan Applied Math. Workshop, Davidson College, No. Carolina, 1983
- Outstanding Mathematician Lectures, Univ. of New Haven, 1983
- Four-lecture minicourse on "Applications of Discrete Mathematics" at MAA Annual Meeting, Louisville, 1984
- Four-lecture minicourse on "Applications of Discrete Mathematics," at MAA Annual Meeting, Anaheim, 1985
- Four lectures on "Applications of Discrete Mathematics" to Asso. Colleges of Central Kansas, McPherson, KS, 1985
- Day-long Workshop on "Applications of Graph Theory" at ORSA Annual Meeting, Boston, 1985

- Eight lectures at Jilin Univ. of Technology, Changchun, Jilin Province, Peoples Republic of China, 1985
- Four lectures at Academia Sinica, Beijing, Peoples Republic of China, 1985
- Two lectures at Univ. of Shandong, Jinan, Shandong Province, Peoples Republic of China, 1985
- Two lectures at Tongji Univ., Shanghai, Peoples Republic of China, 1985
- Six lectures on “Applications of Discrete Mathematics,” Claremont Graduate School, 1986
- Four lecture minicourse on “Applications of Discrete Mathematics,” MAA Annual Meeting, San Antonio, 1987
- Four lectures at Florida Atlantic Univ., Boca Raton, 1987
- Three lectures, MAA, Florida Section, Boca Raton, 1987
- Ten lectures on “Applications of Discrete Mathematics”, MAA Northeastern Section, Univ. of Maine, Orono, 1987
- Fourteen lectures to le Troisieme Cycle Romand, Grimentz, Switzerland, 1988
- Twelve lectures for Mathematics Association of Two Year Colleges of New Jersey, Princeton, May 1988 and September 1988
- Four lectures to COMAP Faculty Advancement Workshop on Discrete Mathematics, Boston, MA, 1988
- Eight lectures, MAA Allegheny Mountain Section, Allegheny College, Meadville, PA, 1988
- Four lecture minicourse on “Applications of Discrete Mathematics,” MAA Annual Meeting, Phoenix, 1989
- Five lectures on Applications of Graph Theory, DIMACS Summer Workshop for High School Teachers, New Brunswick, NJ, 1989
- Two lectures as Visiting Distinguished Professor, Clemson University, 1990.
- Five Lectures on Applications of Graph Theory, DIMACS Summer Workshop for High School Teachers, New Brunswick, NJ, 1990
- Four Lectures on Applications of Graph Theory and Counting, DIMACS Summer Workshop for High School Students, New Brunswick, NJ, 1990.
- Three lectures on Graph Theory and its Applications, Jackson State University, Jackson, Mississippi, 1990.
- Two lectures on Applications of Graph Theory, DIMACS Summer Workshop for High School Teachers, New Brunswick, NJ, 1991.
- Four lectures on Graph Theory and its Applications, William Paterson College, Wayne, NJ, 1992.
- Five lectures on Applications of Graph Theory, DIMACS Summer Workshop for High School Teachers, New Brunswick, NJ, 1992.
- Two Lectures on Order Relations and Utility Functions at Random Utility 2000, Duke University, 2000.
- Two lectures on Applications of Graph Theory at Short Course on A Sampling of Applications of Graph Theory, MAA National Meeting, San Diego, CA, 2002.
- Two lectures on Bioconsensus and Channel Assignments at University of Paris, Dauphine, 2002.
- Six hours of tutorial lectures on The Theory of Measurement and its Applications at DIMACS Working Group Meeting on Order-theoretic Aspects of Epidemiology, DIMACS, 2005.
- Two hours of lectures on Measurement of Pollution, MAA Mathfest, Short course on

Environmental Modeling, Knoxville, TN, 2006.

Three lectures on Mathematics and Homeland Security at Conference on Mathematics and Homeland Security at Department of Homeland Security Center of Excellence for Dynamic Data Analysis, May 2007.

Other Invited Lectures:

Panelist, MAA Summer Meeting, Dartmouth College, 1972

Invited talk at George Washington Univ. Conference on Graphs and Combinatorics, Washington, DC, 1973

Symposium participant, Mathematical Psychology Meetings, Montreal, 1973

Panelist, MAA Annual Meeting, San Francisco, 1974

Invited talk at Operations Research Society of America Meeting, Chicago, 1975

Panelist, MAA Annual Meeting, San Antonio, 1976

Invited talk at Operations Research Society of America Meeting, New York, 1978

Discussant, Energy Information Administration Symposium on Computer Assisted Analysis and Model Simplification, Univ. of Colorado, 1980

Invited talk at AMS Special Session on Graph Theory and Combinatorics, Bryn Mawr, 1982

Invited panelist at MAA New Jersey Section Meeting, Georgian Court College, 1982

Invited talk at Silver Jubilee Combinatorics Conference, Univ. of Waterloo, 1982

Invited talk at Operations Research Society of America Meeting, Chicago, 1983

Invited talk at Operations Research Society of America Meeting Orlando, FL, 1983

Panelist at Meeting of Dept. Chairmen, AMS/MAA Annual Meeting, Louisville, 1984

Invited talk at First Hoboken Symposium on Graph Theory, Stevens Inst. of Technology, 1984

Invited panelist at Amer. Educational Research Asso./Nat'l Council on Measurement in Education Joint Annual Mtg., Chicago, 1985

Panelist at NY Academy of Sciences Internat'l Conference on Combinatorial Mathematics, 1985

Invited talk at special session at AMS National Meeting, New Orleans, 1986

Invited minisymposium speaker, SIAM Nat'l Mtg., Denver, 1987

Invited talk to West Windsor-Plainsboro High School, NJ, 1988

Invited talk to Princeton High School, Princeton, NJ, 1988

Invited talk to High School Institute for Science and Math, Douglass College, 1988

Invited Faculty Workshop, Westfield High School, NJ, 1989

Invited talk to Rahway High School, NJ, 1989

Invited talk to High School Institute for Science and Math, Douglass College, 1989

Invited talk to Spotswood High School, Spotswood, NJ, 1990

Invited talk to International Symposium on Functional Equations, Graz, Austria, 1990

Invited talk at Joint Policy Board in Mathematics Press Briefing on Mathematics and the Environment, Baltimore, MD, 1992

Invited talk at ECCO V, meeting of European Chapter on Combinatorial Optimization, Technische Universitat of Graz, Graz, Austria, 1992

Invited talk at Fourth Annual Stony Brook Biomathematics Conference, SUNY, Stony Brook, NY, 1992

Invited talk at 4th Intern. Conf. on Information Processing and Management of Uncertainty in Knowledge-Based Systems, Palma de Mallorca, Spain, 1992

Series of four invited talks at workshop on Mathematical Systems Underlying Axiomatic

- Measurement Theories, Univ. of California, Irvine, CA, 1992
- Invited talk at conference on Discrete Mathematics in the Schools, DIMACS, 1993.
- Invited panelist at Conference on Graduate Programs in the Applied Mathematical Sciences, Clemson University, Clemson, SC, 1993.
- Invited talk at special session on Graph Theory at American Mathematical Society Meeting, Washington, DC, 1993.
- Invited talk at Cresskill High School, Cresskill, NJ, 1994.
- Invited talk at special session on Graph Theory at American Mathematical Society Meeting, Orlando, FL, 1995.
- Invited talk at Ocean Township High School, Oakhurst, NJ, 1995.
- Invited talk at Livingston High School, Livingston, NJ, 1995.
- Invited talk at DIMACS Leadership Program Reunion, Piscataway, NJ, 1995.
- Invited talk at Rutherford High School, Rutherford, NJ, 1996.
- Invited talk at International Conference on Combinatorics, Balatonlelle, Hungary, 1996.
- Invited talk at session on Mathematics and the Social Sciences, American Mathematical Society Mathfest, Seattle, Washington, 1996.
- Invited talk at DIMACS workshop on Mathematical Hierarchies and Biology, Piscataway, NJ, 1996.
- Invited talk at special session on Partially Ordered Sets, American Mathematical Society Meeting, San Diego, CA, 1997.
- Invited talk at special session on Mathematical Aspects of Consensus Theory, American Mathematical Society Meeting, Washington, DC, 2000.
- Invited talk to Math Academy 2000, Archdiocese of Newark, Program for Teachers, Seton Hall University, 2000.
- Invited panelist, Conference on Challenges for Theoretical Computer Science, Portland, OR, 2000.
- Invited talk at Conference on Ordinal and Symbolic Data Analysis, Brussels, Belgium, 2000.
- Invited panel organizer and panelist at Chairs Colloquium (for Chairs of Departments in the Mathematical Sciences), National Academy of Sciences, Washington, DC, 2000.
- Invited talk at special session on Graph Theory, American Mathematical Society Meeting, Hoboken, NJ, 2001.
- Invited talk at Collegiate School, New York, NY, 2001.
- Invited talk at DIMACS Working Group Meeting on Mathematical Sciences Methods for the Study of Deliberate Releases of Biological Agents and their Consequences, 2002.
- Invited talk at Symposium on Bioconsensus: Bringing Social Choice Theory to Biology, AAAS National Meeting, Boston, 2002.
- Invited talk at Rutgers Symposium on Homeland Security, 2002.
- Invited talk at DIMACS International Conference on Computational and Mathematical Epidemiology, 2002.
- Invited talk at Minisymposium on Applications of Mathematics to the Study of Deliberate Releases of Biological Agents and Related Topics, SIAM 30th Anniversary Meeting, Philadelphia, 2002.
- Invited talk at Conference on Mathematical Modeling of the Spread of Selected Bioterrorism Agents, MITRE Corporation, 2002.
- Invited talk at MITRE Corporation Meeting on Modeling and Prediction of Disease, McLean, VA, 2003.

- Invited talk at DIMACS Workshop on Tree of Life, 2003.
 Invited talk at Knowledge, Discovery and Dissemination Symposium, McLean, VA, 2003.
 Invited talk at Rutgers University Symposium on Homeland Security Research, Sept. 2003.
 Invited talk at State of New Jersey Symposium on Homeland Security Research, Oct. 2003.
 Invited talk at NIH BISTI (Biomedical Information Science and Technology Initiative) Symposium: Digital Biology: The Emerging Paradigm, Bethesda, MD, 2003.
 Invited talk at Minisymposium, ENST-Bretagne, Brest, France, 2004.
 Invited panelist at ASA Workshop on Statistics and Counter-terrorism, New York, 2004.
 Invited talk at Knowledge, Discovery and Dissemination Symposium, McLean, VA, 2004.
 Invited talk at INFORMS Special Session on Diagnosis Models for Port of Entry Inspections, San Francisco, 11-05.
 Invited talk at Knowledge, Discovery and Dissemination Symposium, McLean, VA, 2005.
 US-China Computer Science Leadership Summit, Beijing, China, 5-06.
 Invited talk at Knowledge, Discovery and Dissemination Symposium, McLean, VA, 2006.
 Talk at Advanced Study Institute on Mathematical Modeling of Infectious Diseases of Africa, at African Institute for Mathematical Sciences, Muizenberg, South Africa, June 2007.
 REU Seminar, DIMACS, June 2008.
 Response Talk at Workshop on Algorithmic Decision Theory, University of Paris-Dauphine, October 2008.
 Workshop on Port Security/Safety, Inspection, Risk Analysis and Modeling, Rutgers, November 2008.
 Workshop on Mathematical Science Methods to Enhance Nuclear Detection, Rutgers, November 2008.
 REU Seminar, DIMACS, June 2009.

Misc. seminar talks at:

Bell Labs*, Columbia, Cornell*, CUNY*, Dartmouth*, DIMACS*, Duke, Educational Testing Service, Fordham, IBM, Ithaca College, Los Alamos National Laboratory, Miami University, Montclair State College, National Telecommunications and Information Administration, Northeastern*, Orange Coast College, Princeton*, RAND Corp.*, Rutgers*, Stanford*, Stevens, Stony Brook*, Telcordia Technologies, UC Berkeley, UC Irvine, UCLA*, UC Riverside, Waterloo
 (* indicates more than once)

Departmental or School-Wide Colloquia or Seminars:

1967-68 Dartmouth
 1968-69 Dartmouth
 1969-70 Cornell, Dartmouth
 1971-72 Binghamton, Cornell, Dartmouth, Denver
 1972-73 Baylor, Cornell, MIT, Texas

- 1973-74 Cornell, Gettysburg, Hunter, Lawrence, Montclair State, North Carolina State, Rutgers (Math), Rutgers (Computer Science), Seton Hall
- 1974-75 Adelphi, Colby, Cornell, Franklin and Marshall, Johns Hopkins, Miami of Ohio, Tennessee, Vanderbilt, Villanova, Virginia Tech., Wesley, Westinghouse Res. Labs., Wilkes
- 1975-76 Connecticut, Salisbury State, Swarthmore, Union, Vassar, Wisconsin (Stevens Point), Western Carolina
- 1976-77 Bowling Green, Colgate, General Motors Res. Labs., Manhattan, Montclair State
- 1977-78 Harvard, North Carolina State
- 1978-79 Lehigh, Rider
- 1979-80 Bell Labs, Cornell, Exxon
- 1980-81 Hunter, Miami of Ohio, Rutgers (Indus. Engr.)
- 1981-82 The Citadel, Clemson, Mitre Corp., Northeastern, South Carolina
- 1982-83 Rutgers (Operations Research)
- 1983-84 Lausanne, Missouri, Stevens, Wesleyan
- 1984-85 Aachen, Bonn, Johns Hopkins, McPherson, Univ. of CA/Irvine, Rutgers (Indus. Engr.), East China Normal Univ. (Shanghai, China), Beijing Inst. of Tech (China)
- 1985-86 Rutgers (Operations Research)
- 1986-87 Free University of Brussels, Hartford, Maine
- 1987-88 Colorado (Denver), Miami University, Worcester Poly
- 1988-89 Glassboro State, Johns Hopkins, Supercomputing Research Center, Wright State
- 1989-90 Dickinson, Fordham, Northeastern, Univ. of Puerto Rico, Williams
- 1990-91 Dartmouth, Waterloo, Xavier (New Orleans)
- 1991-92 Seton Hall
- 1992-93 Pittsburgh, Tennessee
- 1993-94 Univ. of Colorado (Denver), Dartmouth, GERAD (Univ. of Montreal)
- 1994-95 Louisville
- 1995-96 Kyung-Hee University (Seoul, S. Korea), Pohang Inst. of Science and Technology (Pohang, S. Korea), Dartmouth
- 1996-97 College of Staten Island (CUNY)
- 1997-98 Fordham, Jawaharlal Nehru University (Delhi, India)
- 1999-00 DIMATIA (Charles University, Prague, Czech Rep.), Indiana University of Pennsylvania, Cheju National University (Cheju Island, Korea), Kyung-Hee University (Seoul, Korea), Seoul National University (Seoul, Korea)
- 2001-01 Illinois Inst. of Technology, South Carolina
- 2001-02 Dartmouth, University of Greenwich (UK), University of Michigan, National Taiwan University
- 2002-03 Colgate, Montclair State
- 2003-04 RPI
- 2004-05 Lawrence Livermore National Laboratory
- 2005-06 Trinity, Xi'An Xiaotong (China)
- 2007-08 Department of Homeland Security, Seton Hall
- 2008-09 Los Alamos

Professional Activities:**Member of:**

American Mathematical Society (AMS)
 Consortium for Mathematics and its Applications (COMAP)
 Mathematical Association of America (MAA)
 Institute for Operations Research and Management Science (INFORMS)
 Society for Industrial and Applied Mathematics (SIAM)
 Society for Mathematical Psychology
 Classification Society of North America
 Association for Computing Machinery (ACM), Special Interest Group in Algorithms and Computational Theory (SIGACT)
 Association for Women in Mathematics
 National Council of Teachers of Mathematics

Editorships:

Editor, SIAM Review, 1972/79
 Editor, special issue of SIAM Jour. on Applied Math., Sept., 1975
 Asso. Editor, SIAM Jour. on Applied Math., 1975/83
 Editorial Board, Encyclopedia of Math and its Applications, 1975/83
 Editorial Board, Discrete Applied Mathematics, 1978.....
 Advisory Editor and Editorial Board, Jour. of Math. Social Sciences, 1979/97
 Editorial Board, Mathematical and Computer Modelling, 1979.....
 Editorial Brd., SIAM Jour. on Algebraic & Discrete Methods, 1980/87
 Editorial Brd., Marcel Dekker Series in Pure and Applied Mathematics, 1980/86
 Editorial Board, Annals of Operations Research, 1983.....
 Editorial Brd., Jour. of Mathematical Psychology, 1986.....
 Editorial Brd., SIAM Jour. on Discrete Mathematics, 1987/97
 Editorial Brd., Jour. of Combinatorics, Information, and Systems Science, 1990
 Editorial Brd., Jour. of Computational Biology, 1993
 Advisory Editorial Board, CRC Handbook of Discrete and Combinatorial Mathematics, 1993
 Editorial Board, Discrete Mathematics, Algorithms and Applications, 2009 ...

Positions in Professional Societies:

1977-81: Secretary of SIAM
 1980-...: Member, COMAP (formerly UMAP) Consortium Council
 1981: Candidate for President of SIAM
 1981-82: Member, CBMS Council
 1982: Candidate for SIAM Board of Trustees
 1983-92: Member, Board of Directors of SIMS (formerly SIAM Institute for Mathematics and Society; now Societal Institute for the Mathematical Sciences)

- 1984-87: Vice President of SIAM
- 1987: Candidate for SIAM Board of Trustees
- 1987-92: Secretary of SIMS
- 2002-...: ACM/SIGACT Distinguished Service Award Prize Committee
- 2004-...: SIAM Committee on Science Policy

Other Activities for Professional Societies:

- 1976-81: Member, Committee on the Undergraduate Program, MAA
- 1976-80: Member, CUPM Panel on a General Math. Sciences Program
- 1979-81: Chairman, MAA-SIAM Committee on Applications of Math. in the
College Curriculum
- 1979-80: Member, SIAM Education Committee
- 1982-84: Member, SIAM Program Committee
- 1982-85: Chairman, SIAM Committee on Relations with the Federal Government
- 1984-87: Chairman, SIAM Major Awards Committee
- 1984-86: Member, Steering Committee, SIAM Activity Group in Discrete Mathematics
- 1986-90: Member, SIAM Committee on Science Policy
- 1988 : Member, SIAM Nominating Committee
- 1990-92: Member, AMS Committee on Cooperative Symposia
- 1993: AMS Representative to Organizing Committee for International Conference
on Ordinal Data Analysis
- 1997-...: Member, AMS/AAAS Liaison Committee
- 2000-08: Member, AMS Science Policy Committee
- 2000-...: Member, SIAM Committee on Science Policy

“Special Focus Programs” Organized:

- 1993-00: DIMACS “Special Year” on Mathematical Support for Molecular Biology,
Chair of Organizing Committee
- 1999-03: DIMACS Special Focus on Computational Molecular Biology, member of
Organizing Committee
- 2002-10: DIMACS Special Focus on Computational and Mathematical Epidemiology,
Chair of Organizing Committee
- 2004-08: DIMACS Special Focus on Computation and the Socio-Economic Sciences,
co-Chair of organizing committee
- 2004-10: DIMACS Special Focus on Information Processing in Biology, Chair of
Organizing Committee

Conferences Organized:

- 1974: Program Committee, SIAM Annual Meeting
- 1975: Conference Chairman, SIMS Res. Applications Conference on Mathematics
and Energy
- 1977: Program Chairman, SIAM 25th Anniversary Meeting
- 1978: Program Committee, SIAM Fall Meeting
- 1978: Symposium Chairman, IGT Symp. on Energy Modeling and Net Energy

Analysis

- 1979: Symposium Chairman, IGT Symp. on Energy Modeling II
- 1979-81: Member, Steering Committee, Environmetrics '81
- 1980: Symposium Chairman, IGT Symp. on Energy Modeling III
- 1981: Symposium Chairman, SIAM Symp. on Applications of Discrete Mathematics
- 1981-82: Symposium Chairman, IGT Symp. on Energy Modeling IV
- 1982-83: Symposium Chairman, Second SIAM Symp. on Applications of Discrete Mathematics
- 1984-86: Conference Co-Chairman, Third SIAM Conf. on Applications of Discrete Mathematics
- 1985: Program Committee, Graph Theory Day X
- 1985: Organizer of Minisymposium on Applications of Discrete Math. to Problems of Society, SIAM Nat'l Meeting
- 1985-86: Organizer, Advanced Research Inst. on Discrete Applied Mathematics, Rutgers University
- 1986...: Program Chairman, Workshop on Applications of Combinatorics and Graph Theory in the Biological and Social Sciences, Inst. for Math. & its Applications, Univ. of Minnesota
- 1986-87: Organizer, Second Advanced Research Institute on Discrete Applied Mathematics, Rutgers University
- 1987: International Advisory Committee, First International Conference on Creative Studies, Shanghai, 1987.
- 1987-88: Organizer, Third Advanced Research Institute on Discrete Applied Mathematics, Rutgers University
- 1988-89: Organizer, Fourth Advanced Research Institute on Discrete Applied Mathematics, Rutgers University
- 1988-90: Program Committee, First Alaska Graph Theory Conference: Quo Vadis Graph Theory
- 1989: Co-Organizer, DIMACS Workshop on Reliability of Computer and Communication Networks, Rutgers University
- 1989-90: Organizer, Fifth Advanced Research Institute on Discrete Applied Mathematics
- 1990-91: Organizer, Sixth Advanced Research Institute on Discrete Applied Mathematics
- 1990-91: Organizer, Workshop on Graph Labellings, Northeastern University
- 1991: Organizer, Genome Day, DIMACS
- 1991-92: Organizer, Seventh Advanced Research Institute on Discrete Applied Mathematics
- 1992-93: Consulting Organizer, Conference on Graduate Programs in the Applied Mathematical Sciences, Clemson University, Clemson, SC.
- 1993: Organizing Committee, International Conference on Ordinal Data Analysis, Amherst, Massachusetts.
- 1996: Organizing Committee, DIMACS workshop on Mathematical Hierarchies and Biology
- 1996-97: Organizing Committee, DIMACS/DIMATIA Conference on the Future of Discrete Mathematics, Stirin Castle, Czech Republic
- 1996-98: Organizing Committee, Conference on Combinatorial and Global

- Optimization, Chania, Greece.
- 1997: Organizing Committee, DIMACS Workshop on Mathematical Hierarchies and Biology
- 1998: Organizing Committee, Hong Kong University of Science and Technology - DIMACS Far-East Workshop on Algorithms and Combinatorics, Hong Kong, 1998.
- 1998: Organizing Committee, International Conference on Combinatorics, Statistics, Pattern Recognition, and Related Areas, Mysore, India, 1998.
- 1998: Organizing Committee, DIMACS Workshop on Combinatorial Clustering and Multi-domain Protein Structure.
- 1998: Organizing Committee, DIMACS Workshop on Advances and Opportunities at the Biology-Math-Computation-Physical Sciences Interface
- 1998: Chair, A Celebration of DIMACS (DIMACS' 10th Anniversary Meeting)
- 1999: Organizing Committee, DIMACS Miniworkshop on Mathematical and Computational Approaches to Elections
- 1999-00: Organizing Committee, International Conference on Ordinal and Symbolic Data Analysis, Brussels, Belgium
- 2000: Organizing Committee, DIMACS Workshop on Bioconsensus.
- 2000: Organizing Committee, DIMACS Workshop on Policy-driven Decision Making and Dynamic Interoperability.
- 2001: Organizing Committee, DIMACS Workshop on Integration of Diverse Biological Data
- 2001: Organizing Committee, DIMACS Workshop on Bioconsensus II.
- 2001-02: Organizing Committee, DIMACS National Chiao Tung University Conference on Interconnections among Codes, Designs, Graphs and Molecular Biology, Hsinchu, Taiwan.
- 2001-02: Organizer, Short Course: A Sampling of Applications of Graph Theory MAA National Meeting, San Diego, CA
- 2001-02: Organizer, Symposium: Bioconsensus: Bringing Social Choice Theory to Biology, AAAS National Meeting, Boston, MA
- 2002: Co-chair, Conference on New Perspectives in Mathematics Education, DIMACS
- 2002: Organizer, DIMACS Working Group Meeting on Mathematical Sciences Methods for the Study of Deliberate Releases of Biological Agents and their Consequences.
- 2002: Organizer, DIMACS International Conference on Computational and Mathematical Epidemiology.
- 2002-03: Organizing Committee, DIMACS Working Group Meeting on Mathematical and Computational Aspects Related to the Study of the Tree of Life.
- 2002-03: Organizer, DIMACS Working Group Meeting on Modeling Social Responses to Bio-terrorism Involving Infectious Agents.
- 2003: Organizer, DIMACS-DIMATIA-Renyi Working Group Meeting on Graph Colorings and their Generalizations.
- 2003: Organizer, NSF-NIH Workshop on Information Processing in the Biological Organism (A Systems Biology Approach).
- 2003: Organizing Committee, International Conference on Ordinal and Symbolic Data Analysis, Irvine, CA.
- 2003: Organizer, Rutgers University Symposium on Homeland Security Research.

- 2003: Organizer, New Jersey Symposium on Homeland Security Research.
- 2004-05: Program Chair, DIMACS Conference on Linking Mathematics and Biology in the High Schools.
- 2004-05: Program Co-Chair, IEEE Conference on Intelligence and Security Informatics, Atlanta, GA.
- 2004: Organizer, DIMACS-DIMATIA-Renyi Working Group Meetings on Graph Coloring and Generalizations, Prague, Czech Republic.
- 2004: Organizing Committee, New Jersey Homeland Security Conference Fort Monmouth, NJ.
- 2004: Organizer, DIMACS LAMSADE Workshop on Computer Science and Decision Theory, Paris.
- 2004: Organizer, DIMACS Working Group Meeting on Data De-Identification, Combinatorial Optimization, Graph Theory, and the Stat/OR Interface.
- 2004: Organizer, MITRE Conference on Computational Biology, McLean, VA.
- 2005: Organizer, DIMACS Working Group Meeting on Order-theoretic Aspects of Epidemiology.
- 2005: Organizer, DIMACS-DIMATIA-Renyi Working Group Meeting on Graph Coloring and their Generalizations, Budapest.
- 2005: Organizing Committee, Governor Codey's School Security Summit, Rutgers University.
- 2005-06: Scientific Committee for Program on National Defense and Homeland Security, SAMSI (Statistical and Applied Mathematical Sciences Institute).
- 2005: DIMACS Working Group on DNA and the Barcode of Life.
- 2005: DIMACS Epidemiology Minisymposium.
- 2005: Conference on Linking Mathematics and Biology in the High Schools, DIMACS.
- 2006: Experimental Analysis of Algorithms: Interfaces between Statistics and Computer Science, DIMACS.
- 2006: Workshop on Computational Optimization and Logistics Challenges in the Enterprise, Exxon-Mobil Research and Engineering, Annandale, NJ.
- 2006: DIMACS DIMATIA Renyi Combinatorial Challenges Meeting.
- 2006: The DNA Barcode Data Analysis Initiative (DBDAI): Developing Tools for a New Generation of Biodiversity Data, Paris.
- 2006: New Jersey Universities Homeland Security Research Consortium Symposium, Fairleigh Dickinson University.
- 2006: US-China Computer Science Leadership Summit, Beijing, China.
- 2006: Chair, DIMACS/AIMS/SACEMA Workshop on Facing the Challenge of Infectious Diseases in Africa: The Role of Mathematical Modeling, Johannesburg, South Africa
- 2006: New Jersey Universities Homeland Security Research Consortium Symposium, Rutgers University.
- 2006: DIMACS/LAMSADE Workshop on Voting Theory and Preference Modeling Universite of Paris - Dauphine.
- 2007: Meeting Co-Chair, IEEE Conference on Intelligence and Security Informatics, New Brunswick, NJ.
- 2007: Chair, DIMACS/AIMS/SACEMA Advanced Study Institute and Workshop on Mathematical Modeling of Infectious Diseases of Africa, Cape Town

- and Stellenbosch, South Africa.
- 2007: Organizer, DIMACS Workshop on Recent Advances in Mathematics and Information Sciences for Analysis and Understanding of Massive and Diverse Sources of Data, Rutgers
- 2007: Organizer, Workshop on The Mathematics of Homeland Security: Topics for High School Teachers, Dept. of Homeland Security Center of Excellence for Dynamic Data Analysis, Rutgers University.
- 2007: Organizer, DIMACS Bio-Math Connection (BMC) Field Testers Workshop (Computational Biology), Rutgers
- 2007: Organizer, Reconnect Conference on Data Analysis and Law Enforcement, Rutgers
- 2007: Organizing Committee, Symposium: The State of the Art in the Decision Sciences Location, University of Luxembourg
- 2007: Organizer, Mini Symposium on Discrete Science Applications in Homeland Security, Dept. of Homeland Security Center of Excellence for Dynamic Data Analysis, Rutgers University.
- 2008: Organizer, US-Africa Advanced Study Institute on Mathematical Modeling of Infectious Diseases in Africa, part II, African Institute for Mathematical Sciences, Muizenberg, South Africa
- 2008: Organizer, Reconnect Conference on Mathematical Methods in Biosurveillance, Rutgers
- 2008: Organizer, Second US-China Computer Science Leadership Summit, Arlington, VA
- 2008: Organizer, DIMACS Bio-Math Connection (BMC) Field Testers Workshop (Epidemiology)
- 2008: Organizing Committee, Workshop on Modeling the Impact of Policy Options during Public Health Crises, Banff International Research Station
- 2008: Organizer, Workshop on Algorithmic Decision Theory, University of Paris-Dauphine
- 2008: Organizer, Workshop on Port Security/Safety, Inspection, Risk Analysis and Modeling, Rutgers
- 2008: Workshop on Mathematical Science Methods to Enhance Nuclear Detection, Rutgers
- 2008: Organizing Committee, Eighth New Jersey Universities Homeland Security Research Consortium Symposium Homeland Security: From Face Recognition to Disease Detection, Natural Disasters to Transit Security, Princeton University
- 2009: Organizer, DIMACS/CINJ BioMedical Informatics Summit Location: The Cancer Institute of NJ (CINJ), New Brunswick, NJ
- 2009: Organizing Committee, Clinic on Meaningful Modeling of Biological Data, African Institute for Mathematical Sciences
- 2009: Organizer, DIMACS Bio-Math Connection (BMC) Field Testers Workshop (Ecology and Population Biology), Rutgers
- 2009: Organizer, Advanced Study Institute and Workshop on Economic Epidemiology, Makerere University, Kampala, Uganda
- 2009: Organizer, Reconnect Conference on Visual Analytics and Applications, Rutgers

- 2009: Organizing Committee, Conference on Algorithmic Decision Theory,
Venice.

Miscellaneous Professional Activities:

- 1974-76: SIAM Lecturer
 1975: Outside Evaluation Committee, Math. Dept., Allegheny College
 1975: Outside Eval. Comm., Program in Math and the Social Sciences,
Dartmouth College
 1976: Participant, MAA Workshop on Applied Math Modules, Cornell
University
 1976...: Member, MAA Consultant's Bureau
 1977-78: Oversight Committee, NSF-RANN Project on Structural Models of
Technology Assessment
 1979-81: Member, State Energy Models Tech. Committee, Colorado School of
Mines Research Inst.
 1980: Outside Evaluation Comm., Math. Dept., SUNY/Plattsburgh
 1982: Outside Evaluator, State Univ. College at Buffalo
 1983: Outside Member, Ph.D. Committee at New York University
 1984: Member, Office of Naval Research Review Panel on Research Options
 1984...: Member, Steering Committee, Mathematical Competition in Modeling
 1985-87: Member, Committee on Applications of Mathematics, National Research
Council
 1985: Outside Evaluation Committee, Math. Dept., Colgate Univ.
 1985: Outside Evaluation Comm., Computer Science Dept., Hunter College
 1986: Board of Visitors, Office of Naval Res. Advisory Board
 1987: Consultant visit to Univ. of Hartford
 1988: Board of Visitors, Office of Naval Res. Advisory Board
 1991: Committee of Visitors, Instructional Materials Development Program,
National Science Foundation
 1991-95: Visiting Lecturers Panel, MAA
 1991: Member, National Science Foundation Review Panel on Statewide
Initiatives in Science, Mathematics, and Engineering Education.
 1992...: External Advisory Board, Center for Theoretical Studies in the Physical
Sciences, NSF Minority Excellence Center at Clark Atlanta University
 1992: Chair of NSF Panel on the Role of Faculty from the Mathematical Science
Disciplines in the Undergraduate Education of Science and Mathematics
Teachers
 1993: Committee of Visitors, Office of Special Projects, Division of
Mathematical Sciences, NSF
 1993: Co-Chair, External Review Committee, Graduate Program in the
Mathematical Sciences, Clemson University, Clemson, SC.
 1993...: Member, Working Group in Discrete Mathematics (Advisory Group for
Discrete Mathematics in the Schools)
 1994: NSF Panel on Instructional Materials Development
 1994: Co-chair, External Review Committee, Department of Mathematics,
University of Colorado, Denver

- 1994: Committee of Visitors, Instructional Materials Development Program,
Division of Elementary, Secondary, and Informal Science Education, NSF
- 1999: Senior Researcher and Panel Organizer, NSF Career PI Meeting
- 2001: Participant, NSF International REU Best Practices Workshop
- 2002: Participant, NIH Consultation on Smallpox Modeling
- 2002: Participant, Secretary of HHS Emergency Preparedness Modeling Group
- 2003-06: Chair, Advisory Committee, NSF Office of International Science and
Engineering
- 2003: Participant, NSF-NIH Symposium on Math-Biology Linkages
- 2003: Participant, NIH Models of Infectious Disease Agents
Study Review Committee, 2003
- 2003: Participant in Conference on Mathematical Modeling of Spread of
Agricultural Bioterrorism Agents, MITRE Corporation, McLean, VA.
- 2003: Panelist at NIH BISTI (Biomedical Information Science and Technology
Initiative) Symposium: Digital Biology: The Emerging Paradigm,
Bethesda, MD.
- 2003-... Representative to NJ State Regional Homeland Security Technology Council
- 2004: Invited participant at ASA/INFORMS Workshop on OR-Stat, Santa Fe, NM.
- 2004-...: Co-Chair, New Jersey Universities Homeland Security Research Consortium.
- 2004-...: Steering Committee, Center for Rapid Response Detective Systems,
Monmouth University.
- 2004-07 Advisory Committee, NJ Department of Homeland Security Center for
Biological, Radiological, Nuclear, and Environmental (CBRNE) Training.
- 2005: Invited Participant: AFMIC, ITIC, DHS Conference on Avian Influenza:
Threat to Homeland Security, Chantilly, VA.
- 2006: Leader, National Science Foundation-CISE US Computer Science Leadership
Delegation to China.
- 2006-...: Member, State of New Jersey Domestic Security Preparedness Planning Group.
- 2006-...: Member, State of New Jersey Health Emergency Preparedness Advisory Council.

Educational Programs Organized:

- 1989-...: Organizer and Lecturer, DIMACS Leadership Program (high school teachers, later K-8)
- 1989-...: Organizer and Lecturer, DIMACS Young Scholars Program (high school students)
- 1996-99 Director, DIMACS Research and Education Institute (DREI) (researchers plus high school teachers), Director
- 2000-04 Director, DIMACS Connect Institute (DCI) (researchers plus high school teachers)
- 1998-...: Director, Reconnect Program for College Faculty
- 1992-...: Director, DIMACS Research Experiences for Undergraduates International REU Program
- 1999-...: DIMACS Educational Modules Series
- 2004-07 DIMACS BioMath Connect Institute (researchers plus high school teachers)
- 2006-...: DIMACS BioMath Connection (modules for high schools)

Rutgers Activities:**Departmental:**

Mathematics Department:

Applied Math Committee, member since 1972 and chairman 5 terms
 Personnel Planning Committee - various terms
 Undergraduate Committee - various terms
 Graduate Committee, 1984-86
 Many ad hoc committees

RUTCOR:

Executive Committee, many terms, to present
 Personnel Committee, many terms
 Admissions Committee, many terms
 Many ad hoc committees

Graduate School of Education:

Search Committee, Faculty in Mathematics Education, 2000-2003

University-Wide:

Physical Sciences Curriculum Committee, 3 terms
 Provost's Committee on School of Business, 1984-85
 Director, Rutgers Center for Operations Research, 1982-83
 Executive Committee, Center for Computer Aids to Industrial Productivity, 1982-85
 Graduate Director, Interdisciplinary Ph.D. Program in OR, 1984-1989
 CAIP Review Panel, 1986.
 University Speakers Bureau, 1988....
 Representative to Executive Committee, Center for Discrete Mathematics and Theoretical Computer Science, 1988-93, 1994-95.
 Associate Director, Center for Discrete Mathematics and Theoretical Computer Science, 1989-92.
 Member, Search Committee for Dean of School of Business, Rutgers Camden, 1989
 Member, New Brunswick Faculty Senate Committee on Educational Policy, 1990-91
 Acting Director, Center for Discrete Mathematics and Theoretical Computer Science, 1991, 1992-93.
 Member, Faculty Advisory Board, Center for Computer Aids to Industrial Productivity, 1991....
 Member, Provost's Committee on the National Transit Institute, 1992.
 Research Advisory Board, 1992-93, 1993-94, 1998 ...
 University Awards Committee, 1992-93, 1993-94.
 Provost's Committee on Strategic Planning in Continuing Education, 1993.
 Advisory Committee on Appointments and Promotions to Professor I - Math and Natural Sciences, Faculty of Arts & Sciences, 1993-94.
 Organizer, Ad hoc Interdisciplinary Committee to Update the BioMath Major, 1994-95.
 Program Committee for Science and Engineering Resource Center, Phase II (SERC II), 1995-96.

President's Committee on Implementation of the Strategic Plan: Information Science and Related Fields, 1995.

Director, Center for Discrete Mathematics and Theoretical Computer Science, 1996 ...

Rutgers Council on Governmental Relations, 1996 ...

Participant, Rutgers Delegation to Coalition for National Science Funding, Congressional Display, 1996

Member, Search Committee for Dean of Engineering, 1996-1998

Member, Science Cabinet, 1997 ...

Member, Information Sciences Council, 1997 ...

Organizer, Rutgers Delegation to Coalition for National Science Funding, Congressional Display, 2000

Member, High Speed Network Applications Committee, 2000-2001

Presentation on Mathematical Sciences and Bioterrorism to National Issues Subcommittee, Board of Trustees, Rutgers, 2002.

Chair, Rutgers University Homeland Security Research Initiative (RUHSRI), 2003...

Coordinator, Rutgers Telecommunications Proposals to NJ Commission on Jobs, Growth, and Economic Development, 2003.

Member, Rutgers-Picatinny Arsenal Coordinating Committee, 2003...

Faculty Advisor, Rutgers Student University Anti-Terrorism Coalition, 2004...

Member, Committee to Evaluate CAIP, 2004.

Chair, Research Advisory Board Investigating Committee, 2004-2005.

Computing Consortium Committee, 2005-.

Chair, Search Committee for Director of Institute of Marine and Coastal Sciences, 2007-2008.

Ph.D. Students

<u>Student</u>	<u>Year of Ph.D.</u>	<u>Current Position</u>
Rochelle Leibowitz	1978	Professor, Wheaton College
Margaret Cozzens	1981	Consultant, Knowles Science Teaching Foundation
Robert Opsut	1984	Asst. to Surgeon General, US Air Force
Arundhati Raychaudhuri	1985	Professor, College of Staten Island
Suh-ryung Kim	1988	Professor, Seoul National University, Seoul, S. Korea
Barry Tesman	1989	Professor, Dickinson College, holder of the Mathias Chair
Sam Rosenbaum	1990	Asst. Prof., Iona College
Garth Isaak	1990	Professor, Lehigh University
Chi Wang	1991	Assoc. Prof., U. of Louisville, and New Media Dept., J. Walter Thompson, USA, Detroit, MI
Denise Sakai	1992	Assoc. Prof., Babson College
Dale Peterson	1995	Assoc. Prof., U.S. Air Force Academy
Aleksandar Pecec	1996	Assoc. Prof., Duke Univ. (School of Business)
Shaoji Xu	1998	Professional Staff, AT&T, Middletown, NJ
Li Sheng	1998	Assoc. Prof., Drexel University
Paul Dreyer	2000	Professional Staff, the RAND Corp., Santa Monica, CA
Stephen Hartke	2004	Asst. Prof., University of Nebraska

Books Authored:

1. *Discrete Mathematical Models, with Applications to Social, Biological and Environmental Problems*, Prentice-Hall, Englewood Cliffs, NJ, 1976.
 - 1a. Russian translation of #1, Nauka, Moscow, 1986.
2. *Graph Theory and its Applications to Problems of Society*, NSF-CBMS Monograph #29, SIAM Publications, Philadelphia, 1978.
3. *Measurement Theory, with Applications to Decisionmaking, Utility, and the Social Sciences*, Addison Wesley, Reading, MA, 1979. (Book in the Encyclopedia of Mathematics and its Applications series.)
 - 3a. Digital printing, Cambridge University Press, 2009.
4. *Applied Combinatorics*, Prentice-Hall, Englewood Cliffs, NJ, 1984.
5. *Applied Combinatorics, Second Edition*, (with Barry Tesman), Pearson Prentice Hall, Upper Saddle River, NJ, 2004.
 - 5a. New edition, 2009: Chapman&Hall/CRC, an imprint of Taylor&Francis, including added section with answers to selected exercises, 2009, 860 pages.
 - 5b. Chinese paperback edition (in English), Pearson Education Asia, 2005.
 - 5c. Simplified Chinese edition (in Chinese), Pearson Education Asia and China Machine Press, 2007.

Books Edited:

1. *Energy: Mathematics and Models*, F.S. Roberts (ed.), SIAM Publications, Philadelphia, 1976.
2. *Energy Modeling and Net Energy Analysis*, F.S. Roberts (ed.), Inst. of Gas Technology, Chicago, 1979.
3. *Energy Modeling II: The Interface Between Model Builder and Decision Maker*, F.S. Roberts (ed.), Inst. of Gas Technology, Chicago, 1980.
4. *Energy Modeling III: Dealing with Energy Uncertainty*, F.S. Roberts (ed.), Inst. of Gas Technology, Chicago, 1981.
5. *Energy Modeling IV: Planning for Energy Disruptions*, F.S. Roberts (ed.), Inst. of Gas Technology, Chicago, 1982.
6. *Discrete and System Models*, W.F. Lucas, F.S. Roberts, & R.M. Thrall (eds.), Springer-Verlag, NY, 1983.
 - 6a. Chinese translation of #6, National University of Defense Technology, University Press, Changsha, Hunan, People's Republic of China, 1997.
7. *Applications of Discrete Mathematics*, R.D. Ringeisen and F.S. Roberts (eds.), SIAM, Philadelphia, 1988.
8. *Applications of Combinatorics and Graph Theory in the Biological and Social Sciences*, F.S. Roberts (ed.), Vol. 17 of IMA Volumes in Mathematics and its Applications, Springer-Verlag, New York, 1989.

9. *Reliability of Computer and Communication Networks*, F. Hwang, C. Monma and F.S. Roberts (eds.), DIMACS Series, Volume 5, American Mathematical Society and Association of Computing Machinery, Providence, RI, 1991.
10. *Discrete Mathematics in the Schools*, J. Rosenstein, D. Franzblau, and F.S. Roberts (eds.), DIMACS Series, Vol. 36, American Mathematical Society, Providence, RI, 1997. (Co-published by National Council of Teachers of Mathematics.)
11. *Mathematical Hierarchies and Biology*, B. Mirkin, F.R. McMorris, A. Rzhetsky, and F.S. Roberts (eds.), DIMACS Series, Vol. 37, American Mathematical Society, Providence, RI, 1997.
12. *Recent Trends in Mathematical Psychology: Psychophysics, Knowledge Representation, Cognition, and Measurement*, C.E. Dowling, F.S. Roberts, and P. Theuns (eds.), Lawrence Erlbaum Associates, Mahwah, NJ, 1998.
13. *Mathematical Support for Molecular Biology*, M. Farach, F.S. Roberts, M. Vingron, and M. Waterman (eds.), DIMACS Series, Vol. 47, American Mathematical Society, Providence, RI, 1999.
14. *Contemporary Trends in Discrete Mathematics*, R.L. Graham, J. Kratochvil, J. Nešetřil, and F.S. Roberts (eds.), DIMACS Series, Vol. 49, American Mathematical Society, Providence, RI, 1999.
15. *Bioconsensus*, M. Janowitz, F.-J. Lapointe, B. Mirkin, F.R. McMorris, and F.S. Roberts (eds.), DIMACS Series, Vol. 61, American Mathematical Society, Providence, RI, 2003.
16. *Intelligence and Security Informatics (Proceedings of the IEEE International Conference ISI 2005)*, Paul Kantor, Gheorge Muresan, Fred Roberts, Daniel D. Zeng, Fei-Yue Wang, Hsinchun Chen, Ralph C. Merkle (eds.), Lecture Notes in Computer Science, LNCS 3495, Springer Verlag, Berlin and Heidelberg, 2005.
17. *Graphs and Discovery*, S. Fajtlowicz, P.W. Fowler, P. Hansen, M.F. Janowitz and F.S. Roberts (eds.), DIMACS Series, Vol. 69, American Mathematical Society, Providence, RI, 2005.
18. *The Mathematics of Preference, Choice and Order: Essays in Honor of Peter C. Fishburn*, S. Brams, W.V. Gehrlein, and F.S. Roberts (eds.), Springer-Verlag, 2009.
19. *Bio-Math in the Schools*, T. Carpenter, M. Cozzens, and F.S. Roberts (eds.), in preparation.

Book Reviews:

Review of Anatol Rapoport: *Mathematical Models in the Social and Behavioral Sciences, Contemporary Psychology*, **29** (1984), 990.

Articles:

1. Some problems in the geometry of visual perception (with P. Suppes), *Synthese*, **17** (1967), 173-201.
2. Axiomatic thermodynamics and extensive measurement (with R.D.Luce), *Synthese*, **18** (1968), 311-326.
3. Indifference graphs, in F. Harary (ed.), *Proof Techniques in Graph Theory*, Academic Press, NY, 1969, 139-146.
4. On the boxicity and cubicity of a graph, in W.T.Tutte (ed.), *Recent Progress in Combinatorics*, Academic Press, NY, 1969, 301-310.
5. A characterization of clique graphs (with J.Spencer), in R.Guy, H.Hanani, N.Sauer, and J.Schonheim (eds.), *Combinatorial Structures and Their Applications*, Gordon and Breach, NY, 1970, 367-368.
6. A new characterization of partial orders of dimension two (with K.A.Baker & P.C.Fishburn), *Annals of NY Acad. of Sci.*, **175** (1970), 23-24.
7. Intersection graphs of families of convex sets with distinguished points (with W.F.Ogden), in R.Guy, H.Hanani, N.Sauer, & J.Schonheim (eds.), *Combinatorial Structures and Their Applications*, Gordon and Breach, NY, 1970, 311-313.
8. On nontransitive indifference, *Jour. of Math. Psychology*, **7** (1970), 243-258.
9. A characterization of clique graphs (with J.Spencer), *Jour. of Comb. Theory*, **10B** (1971), 102-108 (an expanded version of #5).
10. Homogeneous families of semiorders and the theory of probabilistic consistency, *Jour. of Math. Psychology*, **8** (1971), 248-263.
11. On the compatibility between a graph and a simple order, *Jour. of Combinatorial Theory*, **11** (1971), 28-38.
12. Signed digraphs and the growing demand for energy, *Environment and Planning*, **3** (1971), 395-410.
13. Noise pollution: The unseen problem, *Coast Environment*, **1** (1971), 13-15.
14. A derivation of a measure of relative balance for signed digraphs and a characterization of extensive ratio systems (with R.Z.Norman), *Jour. of Math. Psychology*, **9** (1972), 66-91.
15. A measure of relative balance for social structures (with R.Z.Norman), in J.Berger, M.Zelditch & B.Anderson (eds.), *Structural Theories in Progress, II*, Houghton-Mifflin, NY, 1972, 358-391.
16. Partial orders of dimension 2 (with K.A.Baker & P.C.Fishburn), *Networks*, **2** (1972), 11-28.

17. What if utility functions do not exist?, *Theory and Decision*, **3** (1972), 126-139.
18. A note on Fine's axioms for qualitative probability, *Annals of Probability*, **1** (1973), 484-487.
19. Building and analyzing an energy demand signed digraph, *Environment and Planning*, **5** (1973), 199-221.
20. Tolerance geometry, *Notre Dame Jour. of Formal Logic*, **14** (1973), 68-76.
21. Laws of exchange and their applications, *SIAM Jour. of Applied Math.*, **26** (1974), 260-284.
22. Structural characterizations of stability of signed digraphs under pulse processes, in R.Bari & F.Harary (eds.), *Graphs and Combinatorics*, Springer Verlag Lecture Notes #406 1974, 330-338.
23. Signed digraphs and the energy crisis (with T.A.Brown), *Amer. Math. Monthly*, **82** (1975), 577-594.
24. Weighted digraph models for the assessment of energy use and air pollution in transportation systems, *Environment and Planning*, **7** (1975), 703-724.
25. Structural analysis of energy systems, in F.S.Roberts (ed.), *Energy: Mathematics and Models*, SIAM Publications, 1976, 84-101.
26. Commuter transportation and the energy crisis, in R.Axelrod (ed.), *The Structure of Decision*, Princeton Univ. Press, 1976, 142-179.
27. Graphs, garbage, and a pollution solution, in D.P.Maki and M.Thompson (eds.), *Mathematical Models in the Undergraduate Curriculum*, Proc of Conf. held at Indiana Univ., 1976, 58-94.
28. On the theory of uniqueness in measurement (with C.H.Franke), *Jour. of Math. Psychology*, **14** (1976), 211-218.
29. The questionnaire method, in R.Axelrod (ed.), *The Structure of Decision*, Princeton Univ. Press, 1976, 333-342.
30. DNA counts, pesticide projections, and vehicular vectors, in D.Tarwater (ed.), *The Bicentennial Tribute to American Mathematics*, Math. Asso. of America, 1977, 209-218.
31. Food webs, competition graphs, and the boxicity of ecological phase space, in Y.Alavi and D.Lick (eds.), *Theory and Applications of Graphs*, Springer-Verlag Lecture Notes #642, 1978, 477-490.
32. Mixture axioms in linear and multilinear utility theories (with P.C.Fishburn), *Theory and Decision*, **9** (1978), 161-171.
33. Energy modeling and net energy analysis: an overview, in *Energy Modeling and Net Energy Analysis*, Inst. of Gas Technology, Chicago, 1979, 1-25. (Reprinted in *Current Engr. Practice*, 1979.)
34. Graph theory and the social sciences, in R.Wilson and L.Beineke (eds.), *Applications of Graph Theory*, Academic Press, 1979, 255-291.
35. Indifference and seriation, in F.Harary (ed.), *Advances in Graph Theory*, NY Academy of Sciences, 1979, 171-180.

36. On the mobile radio frequency assignment problem and the traffic light phasing problem, *Annals, NY Acad. of Sci.*, **319** (1979), 466-483.
37. Structure and stability in weighted digraph models, *Annals, NY Acad. of Sciences*, **321** (1979), 64-77.
38. Structural modeling and measurement theory, *Tech. Forecasting and Social Change*, **14** (1979), 353-365.
39. Energy modeling: The interface between model builder and decision maker, in *Energy Modeling II: The Interface Between Model Builder and Decision-Maker*, Inst. of Gas Technology, Chicago, 1980, 1-10.
40. On Luce's theory of meaningfulness, *Philos. of Sci.*, **47** (1980), 424-433.
41. Energy modeling: Dealing with energy uncertainty, in *Energy Modeling III: Dealing with Energy Uncertainty*, Inst. of Gas Technology, Chicago, 1981, 1-13.
42. On the fleet maintenance, mobile radio frequency, task assignment, and traffic phasing problems (with R.J.Opsut), in G. Chartrand, et al (eds.), *The Theory and Applications of Graphs*, Wiley, New York, 1981, 479-492.
43. Structural models and graph theory, in H.Greenberg & J.Maybee (eds.), *Computer Assisted Analysis and Model Simplification*, Academic Press, New York, 1981, 59-67.
44. Analogues of the Shannon capacity of a graph (with P.Hell), *Annals of Discrete Math.*, **12** (1982), 155-168.
45. T-colorings of graphs and the channel assignment problem (with M.B.Cozzens), *Congressus Numerantium*, **35** (1982), 191-208.
46. Double semiorders and double indifference graphs (with M.B.Cozzens), *SIAM Jour. on Algebraic & Discrete Methods*, **3** (1982), 566-583.
47. Planning for energy disruptions, in *Energy Modeling IV: Planning for Energy Disruptions*, Inst. of Gas Tech., Chicago, 1982, 1-13.
48. A characterization of competition graphs of arbitrary digraphs (with J.Steif), *Discrete Applied Math.*, **6** (1983), 323-326.
49. Computing the boxicity of a graph by covering its complement by cointerval graphs (with M.B.Cozzens), *Discrete Applied Math.*, **6** (1983), 217-228.
50. Efficiency of energy use in obtaining food I: Humans, in H. Marcus-Roberts and M.Thompson (eds.), *Life Science Models*, Springer-Verlag, NY, 1983, 250-285.
51. Efficiency of energy use in obtaining food II: Animals (with H. Marcus-Roberts), in H. Marcus-Roberts and M.Thompson (eds.), *Life Science Models*, Springer-Verlag, NY, 1983, 286-348.
52. How to cure the plague of calculus (or revisions in the introductory mathematics curriculum), in A. Ralston & G.S.Young (eds.), *The Future of College Mathematics*, Springer-Verlag, NY, 1983, 121-133.

53. Malaria (models of the population dynamics of the malaria parasite) (with H.Marcus-Roberts), in H. Marcus-Roberts and M.Thompson (eds.), *Life Science Models*, Springer-Verlag, NY, 1983, 161-177.
54. I-colorings, I-phasings, and I-intersection assignments for graphs and their applications (with R.J.Opsut), *Networks*, **13** (1983), 327-345.
55. Is calculus necessary, in M. Zweng, et al (eds.), *Proc. of the Fourth Internat'l Congress on Math. Education*, Birkhauser-Boston, Boston, Mass., 1983, 52-53.
56. Optimal I-intersection assignments for graphs: A linear programming approach (with R.J. Opsut), *Networks*, **13** (1983), 317-326.
57. Applications of the theory of meaningfulness to order and matching experiments, in E. De-Greef and J. Van Buggenhaut (eds.), *Trends in Mathematical Psychology*, North-Holland, Amsterdam, 1984, 283-292.
58. Applications of Ramsey theory, *Discrete Applied Math.*, **9** (1984), 251-261.
59. On k-suitable sets of arrangements and the boxicity of a graph (with M.B. Cozzens), *J. Comb., Info. & Syst. Sci.*, **9** (1984), 14-24.
60. On the theory of meaningfulness of ordinal comparisons in measurement, *Measurement*, **2** (1984), 35-38.
61. The introductory mathematics curriculum: misleading, outdated, and unfair, *College Math. Journal*, **15** (1984), 383-385 & 397-399.
62. Applications of edge coverings by cliques, *Discrete Applied Math.*, **10** (1985), 93-109.
63. Applications of the theory of meaningfulness to psychology, *Jour. of Math. Psych.*, **29** (1985), 311-332.
64. Generalized competition graphs and their applications (with A. Raychaudhuri), in P. Brucker and R. Pauly (eds.), *Methods of Operations Research*, **49**, Anton Hain, Konigstein, West Germany, 1985, 295-311.
65. Some results on automorphisms of ordered relational systems and the theory of scale type in measurement (with Z. Rosenbaum), in Y. Alavi, et al (eds.), *Graph Theory and its Applications to Algorithms and Computer Science*, Wiley, NY, 1985, 659-669.
66. Issues in the theory of uniqueness in measurement, in I. Rival (ed.), *Graphs and Orders*, D. Reidel, 1985, 415-444.
67. On scientific laws without dimensional constants (with J. Aczel and Z. Rosenbaum), *J. Math. Anal. & Appl.*, **119** (1986), 389-416.
68. Scale type, meaningfulness, and the possible psychophysical laws (with Z.Rosenbaum), *Math. Soc. Sci.*, **12** (1986), 77-95.
69. Meaningless statistics (with H. Marcus-Roberts), *J. Educ. Stat.*, **12** (1987), 383-394.
70. Some remarks on the double competition number of a graph (with K.F. Jones, J.R. Lundgren, and S. Seager), *Congr. Numerantium*, **60** (1987), 17-24.

71. On the optimal orientations of city street graphs I: Large grids (with Y. Xu), *SIAM J. Discr. Math.*, **1** (1988), 199-222.
72. Tight and loose value automorphisms (with Z. Rosenbaum), *Discrete Applied Math.*, **22** (1988), 69-79.
73. Unique finite conjoint measurement (with P.C. Fishburn), *Math. Soc. Sci.*, **16** (1988), 107-143.
74. Unique finite difference measurement (with P.C. Fishburn and H. Marcus-Roberts), *SIAM J. Discrete Math.*, **1** (1988), 334-354.
75. On dimensional properties of graphs (with M.B. Cozzens), *Graphs and Combinatorics*, **5** (1989), 29-46.
76. On the theory of meaningfulness of ordinal comparisons in measurement II (with L.H. Harvey), *Annals NY Acad. Sci.*, **555** (1989), 220-229.
77. On the optimal orientations of city street graphs II: Two east-west avenues or north-south streets (with Y. Xu), *Networks*, **19** (1989), 221-233.
78. Uniqueness in finite measurement (with P.C. Fishburn), in *Applications of Combinatorics and Graph Theory in the Biological and Social Sciences*, Vol. 17 of IMA Volumes in Mathematics and its Applications, Springer-Verlag, New York, 1989, 103-137.
79. Meaningless statements, matching experiments, and colored digraphs (applications of graph theory and combinatorics to the theory of measurement), in *Applications of Combinatorics and Graph Theory in the Biological and Social Sciences*, Vol. 17 of IMA Volumes in Mathematics and its Applications, Springer-Verlag, New York, 1989, 275-294.
80. Axioms for unique subjective probability on finite sets (with P.C. Fishburn), *Jour. of Math. Psych.*, **33** (1989), 117-130.
81. On the possible merging functions (with J. Aczel), *Math. Soc. Sci.*, **17** (1989), 205-243.
82. Seven fundamental ideas in the application of combinatorics and graph theory in the biological and social sciences, in *Applications of Combinatorics and Graph Theory in the Biological and Social Sciences*, Volume 17 of IMA Volumes in Mathematics and its Applications, Springer-Verlag, New York, 1989, 1-37.
83. Two-sided generalized Fibonacci sequences (with P.C. Fishburn and A.M. Odlyzko), *Fibonacci Quart.*, **27** (1989), 352-361.
84. Extremal competition numbers as a generalization of Turan's theorem (with F. Harary and S. Kim), *J. Ramanujan Math. Society*, **5** (1990), 33-43.
85. On Opsut's conjecture for the competition number (with S. Kim), *Congr. Num.*, **71** (1990), 173-176.
86. Meaningfulness of conclusions from combinatorial optimization, *Discrete Applied Math.*, **29** (1990), 221-241.
87. Merging relative scores, *J. Math. Anal. & Appl.*, **147** (1990), 30-52.

88. Van Lier sequences (with P.C. Fishburn and H. Marcus-Roberts), *Discrete Applied Math.*, **27** (1990), 209-220.
89. Characterizations of the plurality function, *Math. Soc. Sci.*, **21** (1991), 101-127.
90. From garbage to rainbows: Generalizations of graph coloring and their applications, in Y. Alavi, G. Chartrand, O.R. Oellermann, and A.J. Schwenk (eds.), *Graph Theory, Combinatorics, and Applications*, Vol. 2, Wiley, New York, 1991, 1031-1052.
91. i,j Competition graphs (with K. Hefner, K. Jones, S. Kim, and J.R. Lundgren), *Discrete Applied Math.*, **32** (1991), 241-262.
92. On the use of augmenting chains in chain packings (with D. de Werra), *Discrete Applied Math.*, **30** (1991), 137-149.
93. T-colorings of graphs: Recent results and open problems, *Discrete Math.*, **93** (1991), 229-245.
94. On the indicator function of the plurality function, *Math. Soc. Sci.*, **22** (1991), 163-174.
95. Greedy algorithms for T-colorings of complete graphs and the meaningfulness of conclusions about them (with M.B. Cozzens), *J. Comb., Info., & Syst. Sci.*, **16** (1991), 286-299.
96. On the optimal orientations of city street graphs III: Three east-west avenues or north-south streets (with Y. Xu), *Networks*, **22** (1992), 109-143.
97. On 1 0 1-clear (0,1) matrices and the double competition number of bipartite graphs (with S. Kim and S. Seager), *J. Comb., Info., & Syst. Sci.*, **17** (1992), 302-315.
98. 2-Competition graphs (with G. Isaak, S. Kim, T. McKee, and F. McMorris), *SIAM J. on Discrete Math.*, **5** (1992), 524-538.
99. No-Hole 2-distant colorings, *Math. & Computer Modelling*, **17** (1993), 139-144.
100. New directions in graph theory, with an emphasis on applications, *Annals of Discrete Math.*, **55** (1993), 13-44.
101. On the median procedure, in B. Bouchon-Meunier, L. Valverde, and R.R. Yager (eds.), *Uncertainty in Intelligent Systems*, Elsevier, Amsterdam, 1993, 451-462.
102. p-competition numbers (with S. Kim, T. McKee, and F. McMorris), *Discrete Applied Math.*, **46** (1993), 87-92.
103. Consensus functions and patterns in molecular sequences (with B. Mirkin), *Bull. Math. Biology*, **55** (1993), 695-713.
104. Elementary sequences, sub-Fibonacci sequences (with P.C. Fishburn), *Discrete Applied Math.*, **44** (1993), 261-281.
105. On the optimal orientations of city street graphs IV: Four east-west avenues or north-south streets (with Y. Xu), *Discrete Applied Math.*, **49** (1994), 331-356.
106. Limitations on conclusions using scales of measurement, in A. Barnett, S.M. Pollock, and M.H. Rothkopf (eds.), *Operations Research and the Public Sector*, Elsevier, Amsterdam, 1994, 621-671.

107. The meaningfulness of ordinal comparisons for general order relational systems (with Z. Rosenbaum), in P. Humphreys (ed.), *Patrick Suppes: Scientific Philosopher*, Kluwer Academic Publishers, Dordrecht, 1994, 251-274.
108. The reversing number of a digraph (with J.P. Barthelemy, O. Hudry, G. Isaak, and B. Tesman), *Discrete Applied Math.*, **60** (1995), 39-76.
109. p-Competition graphs (with S. Kim, T. McKee, and F. McMorris), *Linear Algebra and Applications*, **217** (1995), 167-178.
110. On the problem of consistent marking of a graph, *Linear Algebra and Applications*, **217** (1995), 255-263.
111. Edge-tenacious networks (with B. Piazza and S. Stueckle), *Networks*, **25** (1995), 7-17.
112. A functional equation that arises in problems of scheduling with priorities and lateness/earliness penalties, *Mathematical and Computer Modelling*, **21** (1995), 77-83.
113. An impossibility result in axiomatic location theory (with P. Hansen), *Math. of Operations Research*, **21** (1996), 195-208.
114. Calculus and mathematical modeling, in *Calculus of a Single and Multivariable*, D. Zill and S. Wright (eds), Student Resource Manual, Jones and Bartlett Publishers, 2009.
115. The one-way street problem (how to teach discrete mathematics), submitted.
116. 3-choosable complete bipartite graphs (with N.V.R. Mahadev and P. Santhanakrishnan), submitted.
117. Role primitive indifference graphs and role assignments on w-fan graphs (with Li Sheng), *Congr. Numer.*, **121** (1996), 65-75.
118. Amenable colorings (with N.V.R. Mahadev), *Discrete Appl. Math.*, **76** (1997), 225-238.
119. The role of applications in teaching discrete mathematics, in *Discrete Mathematics in the Schools*, DIMACS Series, Vol. 36, American Mathematical Society, Providence, RI, 1997, 105-117.
120. Effect of change of scale on optimality in a scheduling model with priorities and earliness/tardiness penalties (with N.V.R. Mahadev and A. Pekec), *Mathematical and Computer Modelling*, **25** (1997), 9-22.
121. Competition numbers of graphs with a small number of triangles (with S. Kim), *Discrete Applied Math.*, **78** (1997), 153-162.
122. Phylogeny graphs of arbitrary digraphs (with L. Sheng), in *Mathematical Hierarchies and Biology*, DIMACS Series, Vol. 37, American Mathematical Society, Providence, RI, 1997, 233-237.
123. Threshold role assignments (with L. Sheng), *Congr. Numer.*, **123** (1997), 135-148.
124. On the meaningfulness of optimal solutions to scheduling problems: Can an optimal solution be non-optimal? (with N.V.R. Mahadev and A. Pekec), *Operations Research*, **46** **supp.** (1998), S120-S134.

125. Role assignments and indifference graphs, in *Recent Trends in Mathematical Psychology*, Lawrence Erlbaum Associates, Mahwah, NJ, 1998, 33-46.
126. The median procedure on median graphs (with F.R. McMorris and H.M. Mulder), *Discrete Applied Math.*, **84** (1998), 165-181.
127. The elimination procedure for the competition number (with S. Kim), *Ars Combinatoria*, **50** (1998), 97-113.
128. Phylogeny numbers (with L. Sheng), *Discrete Applied Math.*, **87** (1998), 213-228.
129. Role assignments (with L. Sheng), in Y. Alavi, D. Lick, and A. Schwenk (eds.), *Combinatorics, Graph Theory, and Algorithms, Vol. II*, New Issues Press, Kalamazoo, MI, 1999, 729-745.
130. Meaningless statements, in *Contemporary Trends in Discrete Mathematics*, DIMACS Series, Vol. 49, American Mathematical Society, Providence, RI, 1999, 257-274.
131. Competition graphs and phylogeny graphs, in L. Lovasz (ed.), *Graph Theory and Combinatorial Biology, Bolyai Society Mathematical Studies*, **7** (1999), *J. Bolyai Mathematical Society*, Budapest, Hungary, 333-362.
132. Balanced signed graphs and consistent marked graphs, *Electronic Notes in Discrete Mathematics* (ENDM), **2** (1999), <http://www.elsevier.nl/locate/endm>.
133. Orientations of annular cities (with J-C. Bermond, J. Bond, C. Martin, and A. Pekec), *J. of Interconnection Networks*, **1** (2000), 21-46.
134. Phylogeny numbers for graphs with two triangles (with L. Sheng), *Discrete Applied Math.*, **103** (2000), 191-207.
135. How hard is it to determine if a graph has a 2-role assignment? (with L. Sheng), *Networks*, **37** (2001), 67-73.
136. The role assignment model nearly fits most social networks (with A. Pekec), *Math. Social Sci.*, **41** (2001), 275-293.
137. Characterizations of consistent marked graphs (with S. Xu), *Discrete Applied Math.*, **127** (2003), 357-371.
138. Extremal phylogeny numbers (with L. Sheng), *J. Comb. Info., Syst. Sci.*, **24** (1999), 143-149.
139. Competition graphs of semiorders and the condition C(p) (with S-R. Kim), *Ars Combinatoria*, **63** (2002), 161-173.
140. Applications of Graph Theory, in S. Hong, J.H. Kwak, J.H. Kim, and F.W. Roush (eds.), *Combinatorial and Computational Mathematics*, World Scientific Press, Singapore, 2001, 210-242.
141. A measure of discrepancy of multiple sequences (with W. Fang and Z. Ma), *J. Information Sciences*, **137** (2001), 75-102.
142. Minimal forbidden graphs for L(2,1)-colorings (with P.C. Fishburn), submitted.
143. The center function on trees (with F.R. McMorris and C. Wang), *Networks*, **38** (2001), 84-87.

144. Discrete mathematics, *International Encyclopedia of the Social and Behavioral Sciences*, Elsevier, 2001, 3743-3746.
 145. Consensus list colorings of graphs and physical mapping of DNA (with N.V.R. Mahadev), in M. Janowitz, F.-J. Lapointe, F.R. McMorris, B. Mirkin, and F.S. Roberts (eds.), *Bioconsensus*, DIMACS Volume 61, America Mathematical Society, Providence, RI, 2003, 83-95.
 146. No-hole L(2,1)-colorings (with P.C. Fishburn), *Discrete Applied Mathematics*, **130** (2003), 513-519.
 147. Challenges for discrete mathematics and theoretical computer science in the defense against bioterrorism, in C. Castillo-Chavez and H.T. Banks (eds.), *Mathematical and Modeling Approaches in Homeland Security*, SIAM Frontiers in Applied Mathematics Series, 2003, 1-34.
 148. Monitoring message streams: Algorithmic methods for automatic processing of messages (with P.B. Kantor), *Journal of the Intelligence Community Research and Development*, February 2, 2007.
 149. Computational and mathematical epidemiology, *Science: Next Wave*, 2004. (Also *Science*, **303** (2004), 717.)
 150. Digital biology: An emerging and promising discipline (with R.W. Morris, C.A. Bean, G.K. Farber, D. Gallahan, A. R. Hight-Walker, Y. Liu, P.M. Lyster, G.C.Y. Peng, M. Twery, and J. Whitmarsh), *Trends in Biotechnology*, **23** (2005), 113-117.
- 26
151. Decision support algorithms for port-of-entry inspection, in *Working Together: Research & Development Partnerships in Homeland Security, Proceedings of DHS/IEEE Conference*, Boston, 2005.
 152. Locating sensors in paths and cycles: The case of 2-identifying codes (with D.L. Roberts), *European Journal of Combinatorics*, **29** (2008), 72-82.
 153. Experimental analysis of sequential decision making algorithms for port of entry inspection procedures (with S. Anand, D. Madigan, R. Mammone, S. Pathak), in S. Mehrotra, D. Zeng, H. Chen, B. Thuraisingham, and F-X Wang (eds.), *Intelligence and Security Informatics, Proceedings of ISI-2006*, Lecture Notes in Computer Science #**3975**, Springer-Verlag, New York, 2006, 319-330.
 154. TOPOFF 3 comments and recommendations by members of New Jersey Universities Consortium for Homeland Security Research (with P.J. Liroy, B. McCluskey, M.J. Liroy, A. Cross, L. Clarke, L.L. Stanton, W. Tepfenhart, E. Ferrara), *Journal of Emergency Management*, **4** (2006), 41-51.
 155. Full color theorems for L(2,1)-colorings (with P.C. Fishburn), *SIAM Journal on Discrete Mathematics*, **20** (2006), 428-443.
 156. Computer science and decision theory, *Annals of Operations Research*, **163** (2008), 209-253.
 157. Sequential decision making algorithms for port of entry inspection: Overcoming computational challenges (with D. Madigan and S. Mittal), in G. Muresan, T. Altiok, B. Melamed, and D. Zeng (eds.), *Proceedings of IEEE International Conference on Intelligence and Security Informatics (ISI-2007)*, IEEE Press, Piscataway, NJ, May 2007, 1-7.

158. Optimization problems for port-of-entry detection systems, (with E. Boros, E. Elsayed, P. Kantor, and M. Xie), in *Intelligence and Security Informatics: Techniques and Applications*, H. Chen and C. C. Yang (eds), Springer, to appear.
159. Decision making using multi-attributed alternatives: Raiffa's contributions in the context of 21st century decision problems, *J. of Multi-Criteria Decision Analysis*, **14** (2008), 161-168.
160. An application of Stahl's conjecture about the k -tuple chromatic numbers of Kneser graphs, in *The Mathematics of Preference, Choice, and Order: Essays in Honor of Peter C. Fishburn*, 2009.
161. The REU Program at DIMACS/Rutgers University (with B.J. Latka), in J. A. Gallian (ed.), *Proceedings of the Conference on Promoting Undergraduate Research in Mathematics*, American Mathematical Society, Providence, RI, 2007, 131-136.
162. Irreversible k -threshold processes: Graph-theoretical threshold models of the spread of disease and of opinion (with P.A. Dreyer, Jr.), *Discrete Applied Mathematics*, **157** (2009), 1615-1627.
163. Efficient sequential decision-making algorithms for container inspection operations (with D. Madigan and S. Mittal), *Naval Research Logistics*, submitted
164. Why BioMath? Why now?, in T.Carpenter, M.B. Cozzens, and F.S. Roberts (eds.), *BioMathematics in the Schools*, American Mathematical Society, to appear.
165. Meaningful and meaningless statements in epidemiology and public health, in B. Berglund, G. B. Rossi, J. Townsend and L. Pendrill (Eds.), *Measurements with Persons*, Taylor and Francis, to appear.
166. Design and deployment of a mobile sensor network for the surveillance of nuclear materials in metropolitan areas (with J. Cheng and M. Xie), in /em Proceedings of 15th International Conference on Reliability and Quality of Design (ISSAT09), to appear.
167. Greedy algorithms in economic epidemiology, A. Gumel and S. Lenhart (eds.), *Modeling Paradigms and Analysis of Disease Transmission Models*, American Mathematical Society, to appear.
168. Sensor management problems of nuclear detection (weth T. Carpenter, J. Cheng, F. Roberts and M. Xie), H. Pham (ed.), *Safety and Risk Modeling and Their Applications*, Springer, submitted.
169. The port reopening scheduling problem, H. Kaul and H.M. Mulder (eds.), *Advances in Interdisciplinary Applied Discrete Mathematics. Interconnections between Consensus and Voting Theory, Clustering, Location Theory, Mathematical Biology, and Optimization*, World Scientific, to appear.

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