

CURRICULUM VITA**Anna Nagurney**

John F. Smith Memorial Professor
 Department of Finance and Operations Management
 Isenberg School of Management
 University of Massachusetts
 Amherst, MA 01003
 (413) 545-5635

Education:

Ph.D., Brown University, June, 1983, in Applied Mathematics specializing in Operations Research, Thesis Title - Stability, Sensitivity Analysis, and the Computation of Competitive Network Equilibria, Thesis Advisor - Stella Dafermos

Sc.M., Brown University, 1980, in Applied Mathematics

A.B., Brown University, 1977, in Russian, magna cum laude

Sc.B., Brown University, 1977, in Applied Mathematics, magna cum laude

Appointments at the University of Massachusetts Amherst:

Director - Virtual Center for Supernetworks and the Supernetworks Laboratory for Computation and Visualization, November, 2001 - present; <http://supernet.som.umass.edu>

John F. Smith Memorial Professor – Department of Finance and Operations Management and Associated Faculty Member – Department of Mechanical and Industrial Engineering and the Department of Civil and Environmental Engineering – Transportation Program, August, 1998 – present

Professor (tenured), 1991-1998, **Associate Professor (tenured)**, 1987-1991, **Assistant Professor**, 1983-1987

Distinguished and Visiting Appointments:

Harvard University, Cambridge, Massachusetts:
Instructor – Office of Continuing Executive Education, 2009

World Bank, Washington, DC:
Consultant, 2008

Rockefeller Foundation Bellagio Center, Lake Como, Italy:
Conference Organizer - Humanitarian Logistics: Networks for Africa, May 5-9, 2008

University of Catania, Italy:
Fulbright Senior Specialist in Business Administration - March 5-19, 2008

Harvard University, Cambridge, Massachusetts:
Science Fellow - Radcliffe Institute for Advanced Study, September 2005 - June 2006

Rockefeller Foundation Bellagio Center, Lake Como, Italy:
Leader - Research Team Residency, March 2004

University of Innsbruck, Innsbruck, Austria:

Fulbright/University of Innsbruck Distinguished Faculty Chair in Economics – SOWI Business School, March - July 2004

Royal Institute of Technology (KTH), Stockholm, Sweden:

Visiting Professor - Division of Transportation and Location Analysis, June - August 2001 and June - August 1999

Royal Institute of Technology (KTH), Stockholm, Sweden:

Distinguished KTH Guest Professor - Division of Optimization and Systems Theory and Division of Regional Planning, June 1996-December 1996

Clemson University, Clemson, South Carolina:

Distinguished Lecturer - Department of Mathematical Sciences, March 23-27, 1992

Brown University, Providence, Rhode Island:

Visiting Scholar - Division of Applied Mathematics, January 1992-August 1992

Massachusetts Institute of Technology (MIT), Cambridge, Massachusetts:

Visiting Scholar - Management Science Area - Alfred P. Sloan School of Management, September 1989 - September 1990

Visiting Associate Professor - MIT Transportation Systems Division, Department of Civil Engineering, and Operations Research Center, September 1988 - August 1989

University of Minnesota, Minneapolis, Minnesota:

Visitor - Institute for Mathematics and its Applications, June 1984

Industrial Experience:

Senior Systems Analyst - Aquidneck Data Corporation, Newport, Rhode Island, August 1979 - September 1980

Programmer/Analyst - Systems Consultants, Inc., Newport, Rhode Island, August 1977 - August 1979

Awards and Honors:

- **Stellar Scholar in Production and Operations Management**, based on the h-index, in study published online in the *Journal of Operations Management*, 2008; h-index of 13; tied for 9th place with six other scholars, based on citations since 1985 and on records of faculty publications at 225 American schools of business
- **Faculty Advisor to the UMass Amherst INFORMS Student Chapter**, the chapter received the 2008 and 2006 Annual Summa Cum Laude Award and the 2007 Magna Cum Laude Award from INFORMS
- **Fulbright Senior Specialist Award in Business Administration**, Department of Mathematics and Computer Sciences, University of Catania, Italy, March 5-19, 2008
- **RSAI (Regional Science Association International) Fellow**, awarded at the North American RSAI Meeting, Savannah, Georgia, November 8-11, 2007

- **2007 Award for the Advancement of Women in Operations Research / Management Science (WORMS)**, awarded at the INFORMS (Institute for Operations Research and the Management Sciences) Annual Meeting, Seattle, Washington, November 4-7, 2007
- **Radcliffe Institute Science Fellow**, Radcliffe Institute for Advanced Study, Harvard University, Cambridge, Massachusetts, 2005-2006
- **Moving Spirit Award**, INFORMS (Institute for Operations Research and the Management Sciences), November 15, 2005, San Francisco, California
- **Award for Outstanding Accomplishments in Research and Creative Activity**, University of Massachusetts Amherst, September 16, 2005
- **College Outstanding Research Award**, Isenberg School of Management, University of Massachusetts Amherst, 2004 - 2005
- **The Rockefeller Foundation Bellagio Center Research Team Residency Fellowship** (with Patrizia Daniele and Monica-Gabriela Cojocaru), Lake Como, Italy, Project: Dynamics of Complex Networks in an Environment of Risk and Uncertainty: Theoretical Foundations and Applications to Global Supply Chain and International Financial Networks, March 2004
- **2004 Best Paper Award** for the paper, "International financial networks with intermediation: Modeling, analysis, and computations," with J. M. Cruz, *Computational Management Science* (2003), 1, 31-58
- **Named Intellectual Leader in Regional Science**, *Papers in Regional Science*, January, 2004, based on citations to published articles
- **AT&T Faculty Fellowship in Industrial Ecology**, 2002
- **Fulbright/University of Innsbruck Distinguished Faculty Chair in Economics**, Innsbruck, Austria, 2001-2002
- **AT&T Faculty Fellowship in Industrial Ecology**, 2001
- **Chancellor's Medal**, University of Massachusetts Amherst, 2000
- **Distinguished Faculty Lecturer**, University of Massachusetts Amherst, 1999 - 2000
- **Eisenhower Faculty Fellowship**, National Highway Institute, 1999
- **John F. Smith Memorial Professorship**, Isenberg School of Management, University of Massachusetts Amherst, 1998
- **Distinguished Chaired Visiting Professorship at the Royal Institute of Technology (KTH)**, Stockholm, Sweden, 1996
- **Beta Gamma Sigma**, University of Massachusetts Amherst, 1993
- **Science Feature**, featured in the magazine, March 13, 1992, in *Women in Science*
- **Faculty Award for Women, National Science Foundation**, 1991; \$250,000
- **Omega Rho**, University of Massachusetts Amherst, 1991
- **University Faculty Fellowship**, University of Massachusetts Amherst, 1989

- **Certificate of Achievement Award**, 1989 IBM Supercomputing Competition
- **National Science Foundation Visiting Professorship for Women**, 1988-MIT, Cambridge, Massachusetts, 9/88-8/89; \$138,000
- **National Council of Women of the United States, Inc., 1987 Young Achiever's Award**, May 4, 1987, New York
- **International Kempe Prize in honor of Tord Palander**, Umea University, Umea, Sweden, 1986
- **Management Research Excellence Award**, School of Management, University of Massachusetts Amherst, 1985
- **Society of Sigma Xi**, 1982
- **National Slavic Honor Society**, 1975
- **Phi Beta Kappa**, 1975

Grants:

2008 **Institute for International Education Grant** - to support travel for several conferees to the Rockefeller Foundation Bellagio Center Conference on Humanitarian Logistics: Networks for Africa on Lake Como, Italy, May 5-9, 2008.

2008 **Rockefeller Foundation Bellagio Study and Conference Center Grant** - to host conference on "Humanitarian Logistics: Networks for Africa," on Lake Como, Italy, May 5-9, 2008.

2008 **Fulbright Senior Specialist in Business Administration** - to conduct a workshop, present lectures, and overview programs and educational materials on the theme - Complex Networks and Vulnerability Analysis: From Innovations in Theory to Education and Practice. The site is the University of Catania in Italy, March 5-19, 2008.

2000-2007 **National Science Foundation Grant** - Decentralized Decision-Making in Complex Network Systems; \$711,125. Supplement received through the Management of Knowledge Intensive Dynamic Systems Program (MKIDS): Knowledge Supernetworks: The Modeling and Management of the Dynamics of Complex Business Processes Under Risk and Uncertainty.

2006 **Radcliffe Institute for Advanced Study Educational Programs** - Exploratory Seminar on Dynamic Networks: Behavior, Optimization and Design, with David Parkes of Harvard University, \$12,000.

2004 **Grant for Professional Development in Teaching**, Center for Teaching, University of Massachusetts at Amherst - Web-Based Computation and Visualization Tools for Transportation and Logistics; \$3,000

2004 **Professional Development Support**; \$2,885 as part of PMYR, University of Massachusetts Amherst.

2002 **AT&T Faculty Fellowship in Industrial Ecology** - Renewal of 2001 AT&T award; \$25,000.

2002 **National Science Foundation Grant** - Decentralized Decision-Making in Complex Network Systems; \$11,250 REU supplement.

2001 **AT&T Faculty Fellowship in Industrial Ecology** - Supernetworks and the Environment: Foundations and a Virtual Center; \$25,000.

2000 **National Science Foundation Grant** – Co-PI – Enterprise-wide Simulation and Analytical Modeling of Comprehensive Freight Movements; \$140,000 (1 year), \$6,000 REU supplement in 2001.

2000 **National Science Foundation Grant** – U.S.-Sweden Collaborative Research: Sustainable Transportation and Land Use in the Information Society; \$28,515 (3 year project).

1996 **GE Fund Grant**; \$850,000, Research Associate, awarded to Department of Chemical Engineering.

1991 **National Science Foundation Faculty Award for Women**, New Directions in Variational Inequalities for Equilibrium Modeling and Computations; \$250,000; \$50,000 per year for 5 years.

1990 **United States Department of Agriculture - Economic Research Service**; \$15,000, Federal Agricultural Credit Programs and Financial Markets: A General Equilibrium Application.

1990 **School of Management Summer Research Grant**, University of Massachusetts Amherst; \$5,000.

1988 **National Science Foundation VPW Grant**; \$138,000+, Parallel and Serial Algorithms for Large-Scale Nonlinear Network Flow Problems.

1987 **National Science Foundation Supercomputer Grant** – Alternative Algorithms for the Computation of Dynamic Equilibria.

1984-87 **School of Management Summer Research Grant**, University of Massachusetts Amherst; \$1,500.

1986 **Cornell Center for Theory and Simulation, the Production Supercomputer Facility**, Large-Scale Computations of Competitive Equilibrium Problems.

1985 **Faculty Research Grant**, University of Massachusetts Amherst, An Abstract Network Framework for the Study of the Firm; \$2,130.

1983 **Faculty Research Grant**, University of Massachusetts Amherst, Sensitivity Analysis in the Combined Network Spatial Price Equilibrium Problem, \$2,073.

Plenary and Endowed Lectures:

- Competitive equilibrium problems, variational inequalities, and regional science, Erik Kempe Prize Lecture, University of Umea, Umea, Sweden, October 11, 1986.
- Recent results for variational inequalities, Optimization Days, Montreal, Quebec, May 12-14, 1993.
- Parallel computing for economic and financial modeling, Massively Parallel Seminars, Free University, Amsterdam, The Netherlands, November 12, 1993.
- Networks for fun and profit, Distinguished Faculty Lecture, University of Massachusetts Amherst, April 5, 2000.
- International financial networks, Stockholm Optimization Days, Stockholm, Sweden, June 26-27, 2000.
- Financial networks, Computational Methods in Decision Making and Finance, Neuchatel, Switzerland, August 16, 2000.

- Parallel computation and finance, Parallel Matrix Algorithms and Applications, Neuchatel, Switzerland, August 17-19, 2000.
- Networks – the science spanning disciplines, Mesh Forum, Connecting Networks, Chicago, Illinois, May 1-4, 2005.
- Equilibria, supernetworks, and evolutionary variational inequalities, 44th Workshop on Variational Analysis and Partial Differential Equations, Erice, Sicily, July 5-14, 2006.
- Supernetworks: Management Science for the 21st Century, International Management Science Forum, Shanghai, China, August 18-19, 2006.
- Operations research and the captivating study of networks and complex decision-making, Brown Symposium for Undergraduates in the Mathematical Sciences (SUMS), Brown University, Providence, Rhode Island, March 3, 2007.
- Multicriteria decision-making for the environment: Sustainability and vulnerability analysis of critical infrastructure systems from transportation networks to electric power supply chains, the 19th Conference on Multicriteria Decision Making, Auckland, New Zealand, January 7-10, 2008.
- Transportation network equilibrium – the formalism for networks today from the Internet to electric power supply chains and financial networks: What the world should learn from regional scientists, the 55th Annual North American Meetings of the Regional Science Association International, Brooklyn, New York, November 19-22, 2008.
- Synergies and vulnerabilities of supply chain networks in a global economy: What we can learn from half a century of advances in transportation, Kleber-Gery lecture, St. Olaf College, Northfield, Minnesota, April 16, 2009.
- To merge or not to merge: Multimarket supply chain network oligopolies, coalitions, and the merger paradox, NET2009: Evolution and Complexity, Rome, Italy, May 28-30, 2009.
- Traffic panel, World Science Festival, New York City, June 10-14, 2009.
- Plenary talk (title TBD), Computational Management Science 2010, Vienna, Austria, July 28-30, 2010.

Books:

Network Economics: A Variational Inequality Approach, Advances in Computational Economics, vol. 1, Kluwer Academic Publishers, Boston, Massachusetts, 1993; second revised edition, vol. 10, Dordrecht, The Netherlands, 1999.

Advances in Equilibrium Modeling, Analysis and Computation, Annals of Operations Research, vol. 44, guest editor, J. C. Baltzer, A. G. Scientific Publishing Company, Switzerland, 1993.

Projected Dynamical Systems and Variational Inequalities with Applications (with D. Zhang), Kluwer Academic Publishers, Boston, Massachusetts, 1996.

Financial Networks: Statics and Dynamics (with S. Siokos), Springer-Verlag, Heidelberg, Germany, 1997.

Environmental Networks: A Framework for Economic Decision-Making and Policy Analysis (with K. K. Dhanda and P. Ramanujam), Edward Edgar Publishing, Cheltenham, England, 1999.

Sustainable Transportation Networks, Edward Edgar Publishing, Cheltenham, England, 2000.

Supernetworks: Decision-Making for the Information Age (with J. Dong), Edward Elgar Publishing, Cheltenham, England, 2002.

Innovations in Financial and Economic Networks, editor, Edward Elgar Publishing, Cheltenham, England, 2003.

Supply Chain Network Economics: Dynamics of Prices, Flows, and Profits, Edward Elgar Publishing, Cheltenham, England, 2006.

Fragile Networks: Identifying Vulnerabilities and Synergies in an Uncertain World (with Q. Qiang), John Wiley & Sons, New York, 2009.

Book Chapters:

A general dynamic spatial price equilibrium model with gains and losses, **Advances in Spatial Theory and Dynamics**, vol. 20, A.E. Andersson, D.F. Batten, B. Johansson, P. Nijkamp, editors, North-Holland, Amsterdam, The Netherlands, 1989, 223-240. The application of variational inequality theory to the study of spatial equilibrium and disequilibrium, **Readings in Econometric Theory and Practice: Volume in Honor of George Judge**, Contributions to Economic Analysis Series, vol. 209, W.E. Griffiths, H. Lutkepold, M.E. Bock, editors, North-Holland, Amsterdam, The Netherlands, 1992, 327-355.

A Splitting Equilibration Algorithm for the computation of large-scale constrained matrix problems: theoretical analysis and applications (with A. Eydeland), **Computational Economics and Econometrics** vol. 22, H. Amman, D. Belsley, and L. Pau, editors, Kluwer Academic Publishers, Boston, Massachusetts, 1992, 65-105.

Human migration networks with class transformations (with J. Pan and L. Zhao), **Structure and Change in the Space Economy**, T.R. Lakshmanan and P. Nijkamp, editors, Springer-Verlag, Berlin, Germany, 1992, 239-258.

Variational inequalities for the computation of financial equilibria in the presence of taxes and price controls (with J. Dong), **Computational Techniques in Economics and Econometrics**, Advances in Computational Economics, vol. 3, D.A. Belsley, editor, Kluwer Academic Publishers, Boston, Massachusetts, 1993, 189-205.

A network framework for general economic equilibrium (with L. Zhao), **Network Optimization Problems: Algorithms, Complexity, and Applications**, D.Z. Du and P.M. Pardalos, editors, World Scientific Press, Singapore, 1993, 363-386.

The modeling and computation of generalized goal programming problems (with S. Thore and J. Pan), **New Directions in Computational Economics**, Advances in Computational Economics, vol. 4, W.W. Cooper and A. B. Whinston, editors, Kluwer Academic Publishers, Boston, Massachusetts, 1994, 95-120.

Formulation and computation of general financial equilibrium with transaction costs (with J. Dong), **Advances in Mathematical Programming and Financial Planning**, vol. 4, K. Lawrence, J.B. Guerard Jr., G.P. Reeves, editors, JAI Press, Greenwich, Connecticut, 1995, 3-24.

Spatial price equilibrium models with discriminatory ad valorem tariffs: Formulation and comparative computation using variational inequalities (with C.F. Nicholson and P.M. Bishop), **Recent Advances in Spatial Equilibrium Modelling: Methodology and Applications**, J. C. J. M. van den Berg, P. Nijkamp, and P. Rietveld, editors, Springer - Verlag, Berlin, Germany, 1995, 179-200.

Parallel computation, **Handbook of Computational Economics**, D. Kendrick, J. Rust, H.M. Amman, editors, North-Holland, Amsterdam, The Netherlands, 1996, 331-400.

Parallel computation of economic equilibria, **Applications on Advanced Computer Architectures**, G. Astfalk, editor, SIAM, Philadelphia, Pennsylvania, 1996, 265-276.

Parallel computation of variational inequalities and projected dynamical systems with applications, **Parallel Computing in Optimization**, S. Migdalas, P.M. Pardalos, and S. Storoy, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands, 1997, 343-411.

Projected dynamical systems for international financial policy modeling and computation (with S. Siokos), **Computational Approaches to Economic Problems**, H. Amman, B. Rustem, and A. Whinston, editors, Dordrecht, The Netherlands, 1997, 175-191.

Massively parallel computation of dynamic traffic networks modeled as projected dynamical systems (with D. Zhang), **Network Optimization**, Lecture Notes in Economics and Mathematical Systems, vol. 450, P. M. Pardalos, D. W. Hearn, W. W. Hager, editors, Springer-Verlag, Berlin, Germany, 1997, 374-396.

Dynamics of international financial networks: modeling, stability analysis, and computation (with S. Siokos), **Knowledge and Networks in a Dynamic Economy**, M.J. Beckmann, B. Johansson, F. Snickers, and R. Thord, editors, Springer-Verlag, Berlin, Germany, 1998, 119-150.

Female doctorates in science and engineering: challenges and opportunities in academia on the cusp of the new millennium, **Science, Technology and Society: University Leadership Today and for the Twenty-first Century**, Ingmar Grethe, editorial chairman, KTH, Stockholm, Sweden, 1998, 259-276.

Introduction to projected dynamical systems for traffic network equilibrium problems (with D. Zhang), **Network Infrastructure and the Urban Environment**, L. Lundqvist, L. G. Mattsson, T. J. Kim, editors, Springer-Verlag, Berlin, Germany, 1998, 125-156.

Network equilibria and disequilibria (with D. Zhang), **Equilibrium and Advanced Transportation Modeling**, P. Marcotte and S. Nguyen, editors, Kluwer Academic Publishers, Boston, MA, 1998, 201-243.

Supply chain networks with multicriteria decision makers (with J. Dong and D. Zhang), **Transportation and Traffic Theory in the 21st Century**, M.A.P. Taylor, editor, Pergamon, Amsterdam, The Netherlands, 2002, 179-196.

Pollution permits and spatial price networks, **Transportation and Network Analysis: Current Trends**, M. Gendreau and P. Marcotte, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands, 2002, 199-220.

Traffic network equilibrium and the environment: A multicriteria decision-making perspective (with J. Dong and P.L. Mokhtarian), **Computational Methods in Decision-Making, Economics and Finance**, E. Kontoghiorghes, B. Rustem, and S. Siokos, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands, 2002, 501-523.

Multicriteria spatial price networks: Statics and dynamics (with J. Dong and D. Zhang), in **Equilibrium Problems and Variational Models**, P. Daniele, A. Maugeri, and F. Giannessi, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands, 2003, 299-321.

International financial networks with electronic transactions (with J. Cruz), **Innovations in Financial and Economic Networks**, A. Nagurney, editor, Edward Elgar Publishing, Cheltenham, England, 2003, 135-167.

A supply chain network economy: Modeling and qualitative analysis (with D. Zhang and J. Dong), **Innovations in Financial and Economic Networks**, A. Nagurney, editor, Edward Elgar Publishing, Cheltenham, England, 2003, 195-211.

Financial and economic networks: An overview, **Innovations in Financial and Economic Networks**, A Nagurney, editor, Edward Elgar Publishing, Cheltenham, England, 2003, 1-26.

Supply chain supernetworks with random demands (with J. Dong and D. Zhang), **Urban and Regional Transportation Modelling: Essays in Honor of David E. Boyce**, D.-H Lee, editor, Edward Elgar Publishing, Cheltenham, England, 2004, 289-313.

Supernetworks: Paradoxes, challenges, and new opportunities, **Transforming Enterprise**, W. H. Dutton, B. Kahin, R. O'Callaghan, and A. W. Wyckoff, editors, MIT Press, Cambridge, Massachusetts, 2004, 229-254.

Spatial equilibration in transport networks, **Handbook of Transport Geography and Spatial Systems**, D. A. Hensher, K. J. Button, K. E. Haynes, and P. R. Stopher, editors, Elsevier, Amsterdam, The Netherlands, 2004, 583-608.

The co-evolution and emergence of integrated international financial networks and social networks: Theory, analysis, and computations (with J. M. Cruz and T. Wakolbinger), to appear in **Globalization and Regional Economic Modeling**, R. J. Cooper, K. P. Donaghy, and G. J. D. Hewings, editors, Springer, Berlin, Germany, 2006.

Supernetworks, invited chapter for **Handbook of Optimization in Telecommunications**, P. M. Pardalos and M. G. C. Resende, editors, Springer, New York, 2006, 1073-1119.

A supply chain network perspective for electric power generation, supply, transmission, and consumption, **Optimisation, Econometric and Financial Analysis**, E. J. Kontogiorghes and C. Gatu, editors, Springer, Berlin, Germany, 2006, 3-27.

Global supply chain networks and risk management: A multi-agent framework (with J. M. Cruz and J. Dong), **Multi-agent Based Supply Chain Management**, B. Chaib-draa and J. Muller, editors, Springer, New York, 2006, 103-134.

Dynamics of global supply chain supernetworks in a new era of risk and uncertainty (with D. Matsypura), **Towards Better Performing Transport Networks**, B. Jourquin, P. Rietveld, and K. Westin, editors, Routledge, England, 2006, 211-235.

Financial networks, invited chapter for **Handbook of Financial Engineering**, C. Zopounidis, M. Doumpos, and P. M. Pardalos, editors, Springer, Berlin, Germany, submitted, 2005.

An evolutionary variational inequality formulation of supply chain networks with time-varying demands (with Z. Liu), **Network Science, Nonlinear Science and Infrastructure Systems**, T. L. Friesz, editor, Springer, Berlin, Germany, 2007, 267-302.

Projected dynamical systems, evolutionary variational inequalities, applications, and a computational procedure (with M.-G. Cojocaru and P. Daniele), **Pareto Optimality, Game Theory and Equilibria**, A. Chinchuluun, A. Migdalas, P. M. Pardalos, and L. Pitsoulis, editors, Springer, Berlin, Germany, 2008, 387-406.

Statics and dynamics of global supply chain networks with environmental decision-making (with J. Cruz and F. Toyasaki), **Pareto Optimality, Game Theory and Equilibria**, A. Chinchuluun, A. Migdalas, P. M. Pardalos, and L. Pitsoulis, editors, Springer, Berlin, Germany, 2008, 803-836.

Identification of critical nodes and links in financial networks with intermediation and electronic transactions (with Q. Qiang), **Computational Methods in Financial Engineering**, E. J. Kontoghiorghes, B. Rustem, and P. Winker, editors, Springer, Berlin, Germany, 2008, 273-297.

Networks in finance, **Handbook on Information Technology and Finance II**, D. Seese, C. Weinhardt, and F. Schlottman, editors, Springer, Berlin, Germany, 2008, 383-420.

Spatially differentiated trade of permits for multipollutant electric power supply chains (with T. Woolley and J. K. Stranlund), **Optimization in the Energy Industry**, K. Kallrath, P. M. Pardalos, S. Rebennack, and M. Scheidt, editors, Springer, Berlin, Germany, 2009, 277-296.

Network economics, **Handbook of Computational Econometrics**, D. Belsley, and E. J. Kontoghiorghes, editors, John Wiley & Sons, 2009, 429-486.

Modeling of supply chain risk under disruptions with performance measurement and robustness analysis (with Q. Qiang and J. Dong), **Managing Supply Chain Risk and Vulnerability: Tools and Methods for Supply Chain Decision Makers**, T. Wu and J. Blackhurst, editors, Springer, London, England, 2009, 91-111.

Edited Journal Special Issues:

Co-Editor (with S. Dafermos) — *Transportation Science* issue on Network Equilibrium, vol. 26, no. 1, 1992.

International Journal of Supercomputer Applications, special issue on Computational Economics, vol. 7, no. 3, 1993.

Computational Economics, special issue on Computational Finance, vol. 7, no. 4, 1994.

Computational Economics, special issue on Computational Finance, joint with M. Gilli, 1995.

Parallel Computing, special issue on Economics, Finance and Decision-Making, with B. Rustem and E. Kontoghiorghes, vol. 26, No. 5, 2000.

Computational Economics, special issue on Finance and Variational Inequalities, vol.17, no. 1, 2001.

Journal Publications:

1. Sensitivity analysis for the general spatial economic equilibrium problem (with S. Dafermos) (1984), *Operations Research*, 32, 1069-1086.
2. Comparative tests of multimodal traffic equilibrium methods (1984), *Transportation Research B*, 18, 469-485.
3. Sensitivity analysis for the general asymmetric network equilibrium problem (with S. Dafermos) (1984), *Mathematical Programming* 28, 174-184.
4. On some traffic equilibrium theory paradoxes (with S. Dafermos) (1984), *Transportation Research B*, 18, 101-110.
5. A network formulation of market equilibrium problems and variational inequalities (with S. Dafermos) (1984), *Operations Research Letters*, 3, 247-250.

6. Computational comparisons of algorithms for general asymmetric traffic problems with fixed and elastic demands (1986), *Transportation Research B*, 20, 78-84.
7. An algorithm for the single commodity spatial price equilibrium problem (1986), *Regional Science and Urban Economics*, 16, 573-588.
8. Computational comparisons of spatial price equilibrium methods (1987), *Journal of Regional Science*, 27, 55-76.
9. Oligopolistic and competitive behavior of spatially separated markets (with S. Dafermos) (1987), *Regional Science and Urban Economics*, 17, 245-254.
10. An algorithm for the classical spatial price equilibrium problem (1987), *Operations Research Letters*, 6, 93-98.
11. Competitive equilibrium problems, variational inequalities, and regional science, Erik Kempe Prize Lecture (1987), *Journal of Regional Science*, 27, 503-514.
12. An equilibration scheme for the traffic assignment problem with elastic demands (1988), *Transportation Research B*, 22, 73-79.
13. Algorithms for oligopolistic market equilibrium problems (1988), *Regional Science and Urban Economics*, 18, 425-445.
14. A general, dynamic spatial price equilibrium model: formulation, solution, and computational results (with J. Aronson) (1988), *Journal of Computational and Applied Mathematics*, 22, 339-357.
15. An algorithm for the solution of a quadratic programming problem with application to constrained matrix and spatial price equilibrium problems (1989), *Environment and Planning A*, 21, 99-114.
16. Parallel and serial variational inequality decomposition algorithms for multicommodity market equilibrium problems (with D. S. Kim) (1989), *The International Journal of Supercomputer Applications*, 3, 34-59.
17. A general equilibrium model of interregional monetary flows (with C. Moore) (1989), *Environment and Planning A*, 397-404.
18. Supply and demand equilibration algorithms for a class of market equilibrium problems (with S. Dafermos) (1989), *Transportation Science*, 23, 118-124.
19. Import and export equilibration algorithms for the net import spatial price equilibrium problem (1989), *Journal of Cost Analysis*, 7, 73-88.
20. Reply to "The Expanding Equilibrium Algorithm - further evidence" (1989), *Journal of Cost Analysis*, 7, 93-102.
21. A general dynamic spatial price network equilibrium model with gains and losses (with J. Aronson) (1989), *Networks*, 19, 751-769.
22. The formulation and solution of large-scale multicommodity equilibrium problems over space and time (1989), *European Journal of Operations Research*, 42, 166-177.
23. The integer linear complementarity problem (with P. M. Pardalos) (1990), *International Journal of Computer Mathematics*, 31, 205-214.
24. Migration equilibrium and variational inequalities (1989), *Economics Letters*, 31, 109-112.

25. Progressive equilibration algorithms: the case of linear transaction costs (with A. Eydeland) (1989), *Computer Science in Economics and Management*, 2, 197-219.
26. A network model of migration equilibrium with movement costs (1990), *Mathematical and Computer Modelling*, 13, 79-88.
27. Serial and parallel equilibration of large-scale constrained matrix problems with application to the social and economic sciences (with D. S. Kim and A. Robinson) (1990), *The International Journal of Supercomputer Applications*, 4.1, 49-71.
28. Parallel computation of large-scale nonlinear network problems in the social and economic sciences (with D. S. Kim) (1990), *Supercomputer*, 40, 50-56.
29. Disequilibrium and variational inequalities (with L. Zhao) (1990), *Journal of Computational and Applied Mathematics*, 33, 181-198.
30. A network equilibrium formulation of market disequilibrium and variational inequalities (with L. Zhao) (1991), *Networks*, 21, 109-132.
31. Parallel computation of large-scale dynamic market network equilibria via time period decomposition (with D. S. Kim) (1991), *Mathematical and Computer Modelling*, 15, 55-67.
32. Equilibrium modeling, analysis, and computation: the contributions of Stella Dafermos (1991), *Operations Research*, 39, 9-12.
33. Human migration networks (with J. Pan and L. Zhao) (1992), *European Journal of Operational Research*, 59, 262-274.
34. A parallel network equilibration algorithm for a class of constrained matrix problems (with A. Eydeland), (1992), *Transportation Science*, 26, 59-68.
35. Algorithms for quadratic constrained matrix problems (with A. Robinson) (1992), *Mathematical and Computer Modelling*, 16, 53-65.
36. A network model and algorithm for the analysis and estimation of financial flow of funds (with M. Hughes) (1992), *Computer Science in Economics and Management*, 5, 23-39.
37. Financial flow of funds networks (with M. Hughes) (1992), *Networks*, 22, 145-161.
38. Generalized goal programming and variational inequalities (with S. Thore and J. Pan) (1992), *Operations Research Letters*, 12, 217-226.
39. The formulation and computation of general financial equilibrium (with J. Dong and M. Hughes) (1992), *Optimization*, 26, 339-354.
40. A stochastic, dynamic airline network equilibrium model (with F. Soumis) (1993), *Operations Research*, 4, 721-730.
41. Networks and variational inequalities in the formulation and computation of market disequilibria: the case of direct demand functions (with L. Zhao) (1993), *Transportation Science*, 27, 4-15.
42. Massively parallel implementation of the Splitting Equilibration Algorithm (with D.S. Kim) (1993), *Computer Science in Economics and Management*, 6, 151-161.
43. Dynamical systems and variational inequalities (with P. Dupuis) (1993), *Annals of Operations Research*, 44, 9-42.

44. Variational inequalities in the analysis and computation of multi-sector, multi-instrument financial equilibria (1994), *Journal of Economic Dynamics and Control*, 18, 161-184.
45. Using Markov chains to model human migration in a network equilibrium framework (with J. Pan) (1994), *Mathematical and Computer Modeling*, 19, 31-39.
46. A dynamical systems approach for network oligopolies and variational inequalities (with P. Dupuis and D. Zhang) (1994), *Annals of Regional Science*, 28, 263-283.
47. On the stability of projected dynamical systems (with D. Zhang) (1995), *Journal of Optimization Theory and its Applications*, 85, 97-124.
48. Massively parallel computation of spatial price equilibrium problems as dynamical systems (with T. Takayama and D. Zhang) (1995), *Journal of Economic Dynamics and Control*, 19, 3-37.
49. Projected dynamical systems modeling and computation of spatial network equilibria (with T. Takayama and D. Zhang) (1995), *Networks*, 26, 69-85.
50. Command and control for congestion pricing of general multimodal transportation networks (with P. Ramanujam) (1995), *Scientia Iranica*, 2, 185-195.
51. Transportation network policy modeling with goal targets and generalized penalty functions (with P. Ramanujam) (1996), *Transportation Science*, 30, 3-13.
52. Stability of spatial price equilibrium modeled as a projected dynamical system (with D. Zhang) (1996), *Journal of Economic Dynamics and Control*, 20, 43-63.
53. Spatial market models with goal targets (with S. Thore and J. Pan) (1996), *Operations Research*, 44, 393-406.
54. Stability analysis of an adjustment process for oligopolistic market equilibrium modeled as a projected dynamical system (with D. Zhang) (1996), *Optimization*, 36, 263-285.
55. Massively parallel computation of large-scale spatial price equilibrium models with discriminatory ad valorem tariffs (with C. F. Nicholson and P. M. Bishop) (1996), *Annals of Operations Research*, 68, 281-300.
56. A projected dynamical systems model of general financial equilibrium with stability analysis (with J. Dong and D. Zhang) (1996), *Mathematical and Computer Modelling*, 24, 35-44.
57. Network decomposition of general financial equilibria with transaction costs (with J. Dong) (1996), *Networks*, 28, 107-116.
58. A variational inequality approach for marketable pollution permits (with K. Dhanda) (1996), *Computational Economics*, 9, 363-384.
59. General financial equilibrium modelling with policy interventions and transaction costs (with J. Dong) (1996), *Computational Economics*, 9, 3-17.
60. On the local and global stability of a travel route choice adjustment process (with D. Zhang) (1996), *Transportation Research B*, 30, 245-262.
61. A general multiproduct, multipollutant market pollution permit model: A variational inequality approach (with K. K. Dhanda and J. Stranlund) (1997), *Energy Economics*, 19, 57-76.
62. Variational inequalities for international general financial equilibrium modeling and computation (with S. Siokos) (1997), *Mathematical and Computer Modelling*, 25, 31-49.

63. Formulation, stability, and computation of traffic network equilibria as projected dynamical systems (with D. Zhang) (1997), *Journal of Optimization Theory and its Applications*, 93, 417-444.
64. Projected dynamical systems in the formulation, stability analysis and computation of fixed demand traffic network equilibria (with D. Zhang) (1997), *Transportation Science*, 31, 147-158.
65. Variational inequalities for marketable pollution permits with technological investment opportunities: the case of oligopolistic markets (with K. K. Dhanda) (1997), *Mathematical and Computer Modeling*, 26, 1-25.
66. A massively parallel implementation of a discrete-time algorithm for the computation of dynamic elastic demand and traffic problems modeled as projected dynamical systems (with D. Zhang) (1998), *Journal of Economic Dynamics and Control*, 22, 1467-1485.
67. Network modeling of international financial equilibria with hedging: statics and dynamics (with S. Siokos) (1998), *Annals of Operations Research*, 82, 139-160.
68. A multimodal traffic network equilibrium model with emission pollution permits: compliance versus noncompliance (with P. Ramanujam and K. K. Dhanda) (1998), *Transportation Research D*, 3, 349-374.
69. Marketable pollution permits in oligopolistic markets with transaction costs (with K. K. Dhanda) (2000), *Operations Research*, 48, 424-435.
70. Dynamic multi-sector, multi-instrument financial networks with futures: modeling and computation (with S. Siokos) (1999), *Networks*, 33, 93-108.
71. Noncompliant oligopolistic firms and marketable pollution permits: statics and dynamics (with K. K. Dhanda) (2000), *Annals of Operations Research*, 95, 285-312.
72. Economic equilibrium and financial networks (1999), *Mathematical and Computer Modelling*, 30, 1-6.
73. Alternative pollution permit systems for transportation networks based on origin/destination pairs and paths (1999), *Transportation Research D*, 5, 37-58
74. Congested urban transportation networks and emission paradoxes (2000), *Transportation Research D*, 5, 145-151.
75. A multiclass, multicriteria traffic network equilibrium model (2000), *Mathematical and Computer Modelling*, 32, 393-411.
76. Dynamics of a transportation pollution permit system with stability analyses and computation (with D. Zhang) (2001), *Transportation Research D*, 6, 243-268.
77. Paradoxes in networks with zero emission links: Implications for telecommunications versus transportation (with J. Dong) (2001), *Transportation Research D*, 6, 283-296.
78. On the equivalence between stationary link flow patterns and traffic network equilibria (with D. Zhang and J. H. Wu) (2001), *Transportation Research B*, 35, 731-748.
79. Bicriteria decision making and financial equilibrium: A variational inequality perspective (with J. Dong) (2001), *Computational Economics*, 17, 29-42.
80. Financial networks and optimally sized portfolios (with J. Dong) (2001), *Computational Economics*, 17, 5-27.

81. Finance and variational inequalities (2001), *Quantitative Finance*, 1, 309-317.
82. Financial networks with intermediation (with K. Ke) (2001), *Quantitative Finance*, 1, 441-451.
83. Teleshopping versus shopping: A multicriteria network equilibrium framework (with J. Dong and P. L. Mokhtarian) (2001), *Mathematical and Computer Modelling*, 34, 783-798.
84. A multiclass, multicriteria traffic network equilibrium model with elastic demand (with J. Dong) (2002), *Transportation Research B*, 36, 445-469.
85. Urban location and transportation in the Information Age: A multiclass, multicriteria network equilibrium perspective (with J. Dong) (2002), *Environment & Planning B*, 29, 53-74.
86. Spatial economic networks with multicriteria producers and consumers: Statics and dynamics (with J. Dong and D. Zhang) (2002), *Annals of Regional Science*, 36, 79-105.
87. Multicriteria network equilibrium modeling with variable weights for decision-making in the Information Age with applications to telecommuting and teleshopping (with J. Dong and P. L. Mokhtarian) (2002), *Journal of Economic Dynamics and Control*, 26, 1629-1650.
88. A supply chain network equilibrium model (with J. Dong and D. Zhang) (2002), *Transportation Research E*, 38, 281-303.
89. Dynamics of supply chains: A multilevel (logistical/informational/ financial) network perspective (with K. Ke, J. Cruz, K. Hancock, and F. Southworth) (2002), *Environment & Planning B*, 29, 795-818.
90. Supply chain networks and electronic commerce: A theoretical perspective (with J. Loo, J. Dong, and D. Zhang) (2002), *Netnomics*, 4, 187-220.
91. Recent advances in Network Economics (2002), *Networks*, 41, 68-72.
92. Supply chain supernetworks and environmental criteria (with F. Toyasaki) (2003), *Transportation Research D*, 8, 185-213.
93. Dynamics of global supply chain supernetworks (with J. Cruz and D. Matsypura) (2003), *Mathematical and Computer Modelling*, 37, 963-983.
94. Financial networks with electronic transactions: Modeling, analysis, and computations (with K. Ke) (2003), *Quantitative Finance*, 3, 71-87.
95. A space-time network for telecommuting versus commuting decision-making (with J. Dong and P.L. Mokhtarian) (2003), *Papers in Regional Science*, 82, 451-473.
96. A supply chain network equilibrium model with random demands (with J. Dong and D. Zhang) (2004), *European Journal of Operational Research*, 156, 194-212.
97. International financial networks with intermediation: Modeling, analysis, and computations (with J. Cruz) (2003), *Computational Management Science*, 1, 31-58.
98. Dynamics of international financial networks with risk management (with J. Cruz) (2004), *Quantitative Finance*, 4, 276-291.
99. Dynamic supernetworks for the integration of social networks and supply chains with electronic commerce: Modeling and analysis of buyer-seller relationships with computations (with T. Wakolbinger) (2004), *Netnomics*, 6, 153-185.

100. Management of knowledge intensive systems as supernetworks: Modeling, analysis computations, and applications (with J. Dong) (2005), *Mathematical and Computer Modelling*, 42, 397-417.
101. Reverse supply chain management and electronic waste recycling: A multitiered network equilibrium framework for e-cycling (with F. Toyasaki) (2005), *Transportation Research E*, 41, 1-28.
102. Supply chain networks, electronic commerce, and supply side and demand side risk (with J. Cruz, J. Dong, and D. Zhang) (2005), *European Journal of Operational Research*, 164, 120-142.
103. Multitiered supply chain networks: Multicriteria decision-making and uncertainty (with J. Dong, D. Zhang, and H. Yan) (2005), *Annals of Operations Research*, 135, 155-178.
104. A retrospective on Beckmann, McGuire, and Winsten's Studies in the Economics of Transportation (with D. Boyce and H. S. Mahmassani) (2005), *Papers in Regional Science*, 84, 85-103.
105. Projected dynamical systems and evolutionary variational inequalities via Hilbert spaces with applications (with M.-G. Cojocaru and P. Daniele) (2005), *Journal of Optimization Theory and Applications*, 27, 1-15.
106. Global supply chain network dynamics with multicriteria decision-making under risk and uncertainty (with D. Matsypura) (2005), *Transportation Research E*, 41, 585-612.
107. Supernetworks: An introduction to the concept and its applications with a specific focus on knowledge supernetworks (with T. Wakolbinger) (2005), *International Journal of Knowledge, Culture and Change Management*, 4, 1523-1530.
108. Preface to "On a paradox of traffic planning" (with D. Boyce) (2005), *Transportation Science*, 39, 443-445.
109. "On a paradox of traffic planning," translation of the (1968) original D. Braess paper from German to English (with D. Braess and T. Wakolbinger) (2005), *Transportation Science*, 39, 446-450.
110. A network modeling approach for the optimization of Internet-based advertising strategies and pricing with a quantitative explanation of two paradoxes (with L. Zhao) (2005), *Netnomics*, 7, 97-114.
111. On the relationship between supply chain and transportation network equilibria: A supernetwork equivalence with computations (2006), *Transportation Research E*, 42, 293-316.
112. Financial networks with intermediation: Risk management with variable weights (with K. Ke) (2006), *European Journal of Operational Research*, 172, 40-63.
113. In memoriam: C. Bartlett McGuire (1925-2006), Christopher B. Winsten (1923-2005) (with David Boyce) (2006), *Transportation Science*, 40, 1-2.
114. The evolution and emergence of integrated social and financial networks with electronic transactions: A dynamic supernetwork theory for the modeling, analysis, and computation of financial flows and relationship levels (with T. Wakolbinger and L. Zhao) (2006), *Computational Economics*, 27, 353-393.
115. Evolution variational inequalities and projected dynamical systems with application to human migration (with J. Pan) (2006), *Mathematical and Computer Modelling*, 43, 646-657.

116. Modeling generator power plant portfolios and pollution taxes in electric power supply chain networks: A transportation network equilibrium transformation (with K. Wu, Z. Liu, and J. K. Stranlund) (2006), *Transportation Research D*, 11, 171-190.
117. Optimal endogenous carbon taxes for electric power supply chains with power plants (with Z. Liu and T. Woolley) (2006), *Mathematical and Computer Modelling*, 44, 899-916.
118. Financial engineering of the integration of global supply chain networks and social networks with risk management (with J. M. Cruz and T. Wakolbinger) (2006), *Naval Research Logistics*, 53, 674-696.
119. Double-layered dynamics: A unified theory of projected dynamical systems and evolutionary variational inequalities (with M.-G. Cojocaru and P. Daniele) (2006), *European Journal of Operational Research*, 175, 494-507.
120. Sustainable supply chain networks and transportation (with Z. Liu and T. Woolley) (2007), *International Journal of Sustainable Transportation*, 1, 29-51.
121. Modeling of electric power supply chain networks with fuel suppliers via variational inequalities (with D. Matsypura and Z. Liu) (2007), *International Journal of Emerging Power Systems*, vol. 8, iss. 1, Article 5.
122. Financial networks with intermediation and transportation network equilibria: A supernetwork equivalence and reinterpretation of the equilibrium conditions with computations (with Z. Liu) (2007), *Computational Management Science*, 4, 243-281.
123. Dynamic electric power supply chains and transportation networks: an evolutionary variational inequality formulation (with Z. Liu, M.-G. Cojocaru, and P. Daniele) (2007), *Transportation Research E*, 43, 624-646.
124. A network efficiency measure for congested networks (with Q. Qiang), (2007), *Europhysics Letters*, 79, 38005, p1-p5.
125. The Internet, evolutionary variational inequalities, and the time-dependent Braess paradox (with D. Parkes and P. Daniele) (2007), *Computational Management Science*, 4, 355-375.
126. Robustness of transportation networks subject to degradable links (with Q. Qiang) (2007), *Europhysics Letters*, 80, 68001, pp 1-6.
127. A unified network performance measure with importance identification and the ranking of network components (with Q. Qiang) (2008), *Optimization Letters*, 2, 127-142.
128. A network equilibrium framework for Internet advertising: Models, qualitative analysis, and algorithms (with L. Zhao) (2008), *European Journal of Operational Research*, 187, 456-472.
129. An efficiency measure for dynamic networks with application to the Internet and vulnerability analysis (with Q. Qiang) (2008), *Netnomics*, 9, 1-20.
130. A network efficiency measure with application to critical infrastructure networks (with Q. Qiang) (2008), *Journal of Global Optimization*, 40, 261-275.
131. A system-optimization perspective for supply chain network integration: The horizontal merger case (2009), *Transportation Research E*, 45, 1-15.
132. A relative total cost index for the evaluation of transportation network robustness in the presence of degradable links and alternative travel behavior (with Q. Qiang) (2009), *International Transactions in Operational Research*, 16, 46-67.

133. An integrated electric power supply chain and fuel market network framework: Theoretical modeling with empirical analysis for New England (with Z. Liu) (2009), *Naval Research Logistics*, 56, 600-624.
134. Environmental impact assessment of transportation networks with degradable links in an era of climate change (with Q. Qiang and L. S. Nagurney) (2010), *International Journal of Sustainable Transportation*, 4, 1-18.
135. An integrated framework for the design of optimal web banners (with L. Hai and Lan Zhao) (2008), *Netnomics*, in press.
136. Multiproduct supply chain horizontal network integration: Models, theory, and computational results (with T. Woolley and Q. Qiang) (2009), *International Transactions in Operational Research*, in press.
137. Supply chain network design under profit maximization and oligopolistic competition (2009), *Transportation Research E*, in press.

Invited and Refereed Encyclopedia Articles:

- Traffic network equilibrium, **Encyclopedia of Optimization**, vol. v, C. A. Floudas and P. M. Pardalos, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands (2001), pp. 464-469.
- Spatial price equilibrium, **Encyclopedia of Optimization**, vol. v, C. A. Floudas and P. M. Pardalos, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands (2001), pp. 245-250.
- Oligopolistic market equilibrium, **Encyclopedia of Optimization**, vol. v, C. A. Floudas and P. M. Pardalos, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands (2001), pp. 119-122.
- Walrasian price equilibrium, **Encyclopedia of Optimization**, vol. v, C. A. Floudas and P. M. Pardalos, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands (2001), pp. 541-544.
- Financial equilibrium, **Encyclopedia of Optimization**, vol. ii, C. A. Floudas and P. M. Pardalos, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands (2001), pp. 125-130
- Equilibrium networks, **Encyclopedia of Optimization**, vol. ii, C. A. Floudas and P. M. Pardalos, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands (2001), pp. 19-23.
- Dynamic traffic networks, **Encyclopedia of Optimization**, vol. ii, C. A. Floudas and P. M. Pardalos, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands (2001), pp. 533-539.
- Variational inequalities: Formulation, **Encyclopedia of Optimization**, vol. v, C. A. Floudas and P. M. Pardalos, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands (2001), pp. 491-498.
- Variational inequalities: Geometric interpretation, existence, **Encyclopedia of Optimization**, vol. v, C. A. Floudas and P. M. Pardalos, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands (2001), pp. 502-505.
- Variational inequalities: Projected dynamical system, **Encyclopedia of Optimization**, vol. v, C. A. Floudas and P. M. Pardalos, editors, Kluwer Academic Publishers, Dordrecht, The Netherlands (2001), pp. 505-510.
- Financial optimization, **Encyclopedia of Applied Optimization**, P.M. Pardalos and M. G. C. Resende, editors, Oxford University Press, Oxford, England (2001).

Networks, **Encyclopedia of Science, Technology, and Ethics**, Macmillan Reference, USA, 2005.

Mathematical models of transportation and networks, **Mathematical Models in Economics, Encyclopedia of Life Support Systems**, (EOLSS), W.-B. Zhang, editor, UNESCO, 2007.

Refereed Proceedings:

Optimal routing in multi-platform naval task force operations, **Proceedings of the M.I.T./O.N.R. Workshop on C³ Problems** (1979).

Stability and sensitivity analysis for the general network equilibrium - travel choice model (with S. Dafermos) (1984), in **Proceedings of the Ninth International Symposium on Transportation and Traffic Theory**, edited by J. Volmuller and R. Hamerslag, Utrecht, The Netherlands, pp. 217-232.

Equilibration operators for the solution of constrained matrix problems, (with A. Robinson), **XXVII European Congress of the Regional Science Associations Proceedings**, Regional Development Institute, Pantios Graduate School of Political Science, Athens, Greece, 1987.

Equilibria and disequilibria in spatial markets with direct demand functions (with L. Zhao), in **Selected Proceedings of the Fifth World Conference on Transport Research** 1989, Yokohama, Japan, pp. D505-520.

Computation of large-scale constrained matrix problems: the Splitting Equilibration Algorithm (with A. Eydeland and D. S. Kim), **Proceedings of Supercomputing '90**, New York, NY, November 12-16, 1990.

Simulation of dynamic adjustment processes for network equilibrium problems using electronic circuit analysis software (with L. S. Nagurney), **Proceedings 1992 IEEE Systems, Man, and Cybernetics Conference**, Chicago, Illinois, pp. 848-852.

Computation in the curriculum, **Conference on Graduate Programs in the Applied Mathematical Sciences II**, 1993, Clemson University, Clemson, SC, pp. 83-85.

A supply chain network perspective for electric power generation, supply, transmission, and consumption (with D. Matsypura) (2004), **Proceedings of the International Conference in Computing, Communications and Control Technologies**, Austin, Texas, Volume VI, pp. 127-134.

Proceedings (Electronic):

A transportation network efficiency measure that captures flows, behavior, and costs with applications to network component importance identification and vulnerability (with Q. Qiang) (2007), **Proceedings of the 2007 POMS Meeting**, Dallas, Texas, May 3-7.

Invited Papers:

Large-scale competitive equilibrium problems: models and algorithms (1987), *Forefronts*, vol. 2, no. 9, Cornell University, pp. 3-5.

Nonlinear networks in the social and economic sciences (1990), *Forefronts*, vol. 5, no. 12, Cornell University pp. 3-7.

Parallel computation of economic equilibria, January, 1992, *SIAM News*.

Women academics and adventures overseas, (with M. Wiecek), *OR/MS Today*, August 1997, Lionheart Publishing Co., Atlanta, GA.

A flight into the future, *OR/MS Today*, April, 1998, Lionheart Publishing Co., Atlanta, GA, pp. 36.

Navigating the Network Economy, *OR/MS Today*, June, 2000, Lionheart Publishing Co., Atlanta, GA, pp. 74-75.

Experiences from a Research Team Residency at the Rockefeller Foundation's Bellagio Center (with P. Daniele and M.-G. Cojocaru), appears in the *Association for Women in Mathematics Newsletter*, 2004.

Getting there from here: The route to sustainable transportation is paved with knowledge and creativity, *UMASS Magazine*, Spring, 2006.

A year as a Science Fellow at the Radcliffe Institute for Advanced Study at Harvard, *OR/MS Today*, August 2006, Lionheart Publishing Co., Atlanta, GA, pp. 30-32.

Supernetworks: The origins, some applications, and possibilities, *INFORMS Computing Society (ICS) Newsletter*, Fall 2007.

Book Reviews:

Parallel and Distributed Computation, D. P. Bertsekas and J. Tsitsiklis, Prentice Hall, Englewood Cliffs, New Jersey, 1989, *International Journal of Supercomputer Applications* (1989), vol. 4, 73-74.

Chaos and Socio-Spatial Dynamics, D. S. Dendrinos and M. Sonis, Springer-Verlag, Berlin, Germany, 1990, *Journal of Regional Science* (1991).

Nonlinear Economic Dynamics, T. Puu, Springer-Verlag, Berlin, Germany, 1993, *Journal of Regional Science* (1993).

Journey of Women in Science and Engineering, S. A. Ambrose, K. L. Dunkle, B. B. Lazarus, I. Nair, D. A. Haskus, 1997, *Science Book and Films* (1997).

Attractors, Bifurcations, & Chaos, second edition, T. Puu, Springer, 2003, *Journal of Regional Science* 44 (2004).

Transport Developments and Innovations in an Evolving World, M. Beuthe, V. Himanen, A. Reggiani, and L. Zamparini, editors, Springer, 2004, *Papers in Regional Science* (2005), 84, 521-526.

Articles in the Press:

Sunday column on UMASS sees problems and potential. Letter to the Editor, *Sunday Republican*, May 22, 2001, p. A12.

Valley center for visiting researchers proposed, Op Ed page, *Sunday Republican*, August 19, 2001, p. B3.

New attention to the science of networks, Letter to the Editor, *Chronicle of Higher Education*, March 28, 2003.

It's now time to back the state university, Letter to the Editor, *Daily Hampshire Gazette*, May 22, 2003.

Blackout is reminder of world's connectivity, Letter to the Editor, *Springfield Republican*, August 19, 2003.

Commentary on the Big Blackout, August 2003, *The Supernetwork Sentinel*, Fall 2003.

Planners of new bridge should consider the Braess Paradox, Letter to the Editor, *Daily Hampshire Gazette*, November 15, 2003.

Supernetworks: The paradigm for critical infrastructure and the supernetworked economy, *The Supernetwork Sentinel*, Winter 2004.

Experiences from an (Operations) Research Team Residency at the Rockefeller Foundation's Bellagio Center, Letter from Abroad (with P. Daniele and M.-G. Cojocar), *OR/MS Today*, April 2004, p. 18.

Supernetworks: An introduction to the concept and its applications with a specific focus on knowledge supernetworks (with T. Wakolbinger), *The Supernetwork Sentinel*, Fall 2004.

Teaching engineers about humans and technology, Letter to the Editor, *Chronicle of Higher Education*, September 3, 2004.

UMass research aids homeland security work, Letter to the Editor, *Daily Hampshire Gazette*, October 22, 2004.

Enhancing research through e-science, Letter to the Editor, *Chronicle of Higher Education*, February 4, 2005.

Member profile, *INFORMS Computing Society Newsletter*, 2005.

In need of transportation? Take a seat on the bus, Letter to the Editor, *Springfield Republican*, May 21, 2006.

Meeting the region's energy needs, Invited Opinion Piece, *Daily Hampshire Gazette*, November 8, 2006.

UMass makes its mark in academics, athletics, Letter to the Editor, *Springfield Republican*, December 12, 2006.

The importance of research, Letter to the Editor, *Chronicle of Higher Education*, February 2, 2007.

Making investments in the state's infrastructure, Letter to the Editor, *Daily Hampshire Gazette*, April 14, 2007.

UMass should act more like a family unit, OpEd, *Sunday Republican*, June 3, 2007.

What a wonderful (MIT) world, Letter to the Editor, *ORMS Today*, August, 2007.

Low turnout in the HOV lane, Letter to the Editor, *Boston Globe*, November 5, 2007.

A new roadmap for transit planning, OpEd, *Daily Hampshire Gazette*, June 16, 2008.

Biking in Paris, Letter to the Editor, *New York Times*, July 8, 2008.

Join the queue, Letter to the Editor, *The Economist*, September 25, 2008.

Coach Cal still fond of days at UMass, Letter to the Editor, *Springfield Republican*, November 19, 2008.

Coach Cal, Letter to the Editor, *Daily Hampshire Gazette*, November 19, 2008.

Financial networks, contagion, and the present economic crisis (with Q. Qiang), *The Supernetwork Sentinel*, Winter 2009.

How to make science class interesting – experiment, Letter to the Editor, *New York Times*, January 19, 2009.

Remembering a life of enduring relevance, Letter to the Editor, *Chronicle of Higher Education*, March 13, 2009.

Fragile Networks: Prioritizing investments in the ties that bind and really matter, *The Supernetwork Sentinel*, Fall 2009.

When a critical link is lost, Letter to the Editor, *The Boston Globe*, November 8, 2009.

Press Interviews:

UMass Amherst gets grant from AT&T to study 'supernetworks', *Mass High Tech*, February 25, 2002.

Researchers "Network" at Virtual Center, *OR/MS Today*, February, 2002.

Fulbright Scholar Story: see <http://supernet.som.umass.edu> under "Fulbright"

UMass professor gets AT&T Fellowship, *Mass High Tech*, January 27, 2003.

Isolation is the key, *Daily Hampshire Gazette*, August 16, 2003.

Professor receives grant, *The Massachusetts Daily Collegian*, November 21, 2003.

Supernetworks lab chief is super-driven, *Mass High Tech*, December 15, 2003.

After the blackout: Supernetwork models to the rescue, *Commonwealth*, January 2004.

Interview on the new UMass INFORMS student chapter and its Operations Research / Management Science seminar series by the UMass Office of Public Information, October 2004.

New border rules call for shift in logistics strategy, *Mexico Watch*, vol. 7, no. 12, December 1, 2001, p. 6.

Interviewed by Denise Dubie in *NetworkWorld*, April 9, 2007, "Network measurement tool shines spotlight on weakest links," also appeared in *Computerworld*, *LinuxWorld*, and several international editions of *NetworkWorld*.

Interviewed by Gopal Ratnam, July 10, 2007 for the article, "Bloomberg pushes for New York congestion-pricing plan (Update 1)," bloomberg.com

Interviewed by Lily Ladewig for article, "Profiles in Mentoring," Mellon Mutual Mentoring Initiative, Office of Faculty Development, UMass Amherst; appears on the website.

Interviewed by Linda Baker in the *Scientific American* for the article, "Detours by design," February 2009.

Interviewed by Megan Talkington for the *Discover* magazine blog, as part of the World Science Festival Traffic panel, NYC, June 12, 2009.

Interviewed by Barry List, Communications Director of INFORMS for a Science of Better podcast on *Fragile Networks*, October 13, 2009.

TV Interview:

Lappas Show - "Your State University" segment, November 30, 2003; Channel 40 Springfield and Channel 56 Boston.

Radio Interviews:

WAMC (NPR) New England News - National Grid expanding its northeastern reach, Dan Bobkoff, February 28, 2006.

WNYC (NPR) The Brian Lehrer Show - Traffic jam, June 11, 2009.

Technical Reports:

A communication model, Systems Consultants, Inc., December, 1978.

On the utilization of computer-aided decisions for submarine transit planning and communications (with M. T. Silva), Naval Underwater Systems Center, December, 1978.

The advantages of the transit dynamic programming model with respect to computerization, Systems Consultants, Inc., December, 1978.

A method for determining the susceptibility of a submarine communications network, Systems Consultants, Inc., January, 1979.

Decision-making in an uncertain environment - the application of Markovian Decision Theory to multi-stage submarine C³ operations, Systems Consultants, Inc., June, 1979.

Analytical modeling design document of the Hughes IR & D bus, Aquidneck Data Corporation, August, 1980

Analytical modeling design document of the HXDP bus, Aquidneck Data Corporation, September, 1980.

Computer programs for multimodal traffic equilibrium problem with elastic demands, University of Massachusetts Amherst, 1984.

Sensitivity analysis for market equilibrium problems, Institute for Mathematics and its Applications, University of Minnesota, preprint series #97, 1984

On some market equilibrium theory paradoxes 1984, Institute for Mathematics and its Applications, University of Minnesota, preprint series #96, 1984.

A network framework for the study of the multiproduct, multifactor firm, University of Massachusetts Amherst, 1984.

Isomorphism between spatial price and traffic network equilibrium models (with S. Dafermos), Lefschetz Center for Dynamical Systems, Brown University, LCDS #85-17, 1985.

Equilibration operators for the solution of constrained matrix problems (with A. Robinson), Operations Research Center, MIT, Cambridge, MA OR 222-90, 1990.

Parallel computation of large-scale dynamic market network equilibria via time period decomposition (with D. S. Kim), Operations Research Center, MIT, Cambridge, MA, OR 221-90, 1990.

A Splitting Equilibration Algorithm for the computation of large-scale constrained matrix problems, theoretical analysis and applications (with A. Eydeland), Operations Research Center, MIT, Cambridge, MA, OR 223-90, 1990.

Research opportunities in computational economics, Report of the NSF Workshop on Research Opportunities in Computational Economics, Department of Economics, University of Texas, Austin, Report R-91, D. Kendrick, editor, 1991.

Dynamical systems and variational inequalities, Lefschetz Center for Dynamical Systems, Brown University, LCDS #92-11, 1992.

Papers Presented at Conferences:

Comparative tests of multimodal traffic equilibrium methods (with S. Dafermos) ORSA/TIMS National Meeting, May 14-16, 1984, San Francisco, CA.

Sensitivity analysis for a production model, ORSA/TIMS National Meeting, May 14-16, 1984, San Francisco, CA.

Stability and sensitivity analysis for the general network equilibrium-travel choice model (with S. Dafermos), Ninth International Symposium on Transportation and Traffic Theory, July 11-13, 1984, Delft, The Netherlands.

A network formulation for market equilibrium problems and variational inequalities (with S. Dafermos), ORSA/TIMS National Meeting, November 25-28, 1984, Dallas, TX.

Isomorphism between spatial price equilibrium and traffic network equilibrium models (with S. Dafermos), Regional Science National Meeting, November 8-11, 1984, Denver, CO.

Computational methods for variational inequalities with application to transportation, ORSA/TIMS National Meeting, April 29-May 1, 1985, Boston, MA.

An abstract network formulation of oligopolistic market equilibrium (with S. Dafermos), ORSA/TIMS National Meeting, April 29-May 1, 1985, Boston, MA.

Computational comparisons of spatial price equilibrium methods, 12th International Symposium of Mathematical Programming, August 5-9, 1985, Cambridge, MA.

Oligopolistic and competitive behavior of spatially separated markets (with S. Dafermos), 5th World Congress of the Economics Society, August 17-24, 1985, MIT, Cambridge, MA.

A game theoretic formulation of spatial price equilibrium, ORSA/TIMS National Meeting, November 4-6, 1985, Atlanta, GA.

Algorithms for the solution of oligopolistic market equilibrium problems, ORSA/TIMS National Meeting, April 14-16, 1986, Los Angeles, CA.

Algorithms for oligopolistic market equilibrium problems, TIMS XXVIII, July 21-25, 1986, Gold Coast, Australia.

A general dynamic spatial price equilibrium model: formulation, solution, and computational results (with J. Aronson), ORSA/TIMS National Meeting, October 27-29, 1986, Miami, FL., also presented at the National RSA, November 4-6, 1986, Columbus, Ohio.

Equilibrium operators for the solution of constrained matrix problems, European Congress in Regional Science, August 25-28, 1987, Athens, Greece.

Competitive equilibrium problems and variational inequalities, CISER Conference on "Innovations in Social Science Computing," November 11-13, 1987, Cornell U., Ithaca, N.Y.

- An algorithm for the solution of the spatial price equilibrium problem, ORSA/TIMS National Meeting, October 25-28, 1987, St. Louis, MO.
- Equilibrium operators for the solution of constrained matrix problems, ORSA/TIMS National Meeting, October 25-28, 1987, St. Louis, MO.
- An algorithm for the solution of some quadratic programming problems with application to constrained matrix and spatial price equilibrium problems, Regional Science National Meeting, November 6-8, 1987, Baltimore, MD.
- Parallel algorithms for market equilibrium problems, Third SIAM Conference on Parallel Processing for Scientific Computing, December 1-4, 1987, Los Angeles, CA.
- A network equilibration algorithm for the estimation of economic and accounting matrices, ORSA/TIMS National Meeting, April 25-27, 1988, Washington, DC.
- Equilibration algorithms for classical spatial price equilibrium problems, Optimization Days, May 2-4, 1988, HEC, Montreal, Canada.
- On the solution of large-scale nonlinear network flow problems via equilibration, The International Management Science Conference, July 6-9, 1988, Paris, France.
- The composition of large-scale equilibrium problems using parallel and serial decomposition, International Mathematical Programming Symposium, August 28-September 2, 1988, Tokyo, Japan.
- Supply and demand equilibration algorithms for a class of market equilibrium problems, ORSA/TIMS National Meeting, October 23-26, 1988, Denver, CO.
- Parallel and serial variational inequality decomposition algorithms for multicommodity market equilibrium problems, National RSA Meeting, Toronto, Ontario, November 11-13, 1988, also presented at the Third SIAM Conference on Optimization, Boston, MA, April 3-5, 1989.
- The analysis of progressive equilibration algorithms (joint with A. Eydeland), Third SIAM Conference on Optimization, Boston, MA, April 3-5, 1989.
- Disequilibrium and variational inequalities, Optimization Days, May 4-5, 1989, Montreal, Canada.
- Equilibria and disequilibria in spatial markets with direct demand functions (with L. Zhao), 5th World Conference on Transport Research, July 10-14, 1989, Yokohama, Japan.
- Disequilibria and variational inequalities (with L. Zhao), ORSA/TIMS National Meeting, October 16-18, 1989, NY, NY.
- Parallel and serial network equilibration algorithms for the computation of large-scale constrained matrix problems, National RSA Meeting, November 10-12, 1989, Santa Barbara, CA.
- Price rigidities in equilibrium markets and variational inequalities, ORSA/TIMS National Meeting, May 7-9, 1990, Las Vegas, Nevada.
- A general dynamic spatial price network equilibrium model with gains and losses (with J. Aronson), ORSA/TIMS National Meeting, May 7-9, 1990, Las Vegas, Nevada.
- A splitting equilibration algorithm for the computation of large-scale constrained matrix problems (with A. Eydeland), annual meeting of the Society for Dynamics and Control, June 28-30, 1990, St. Paul, Minnesota.
- Disequilibrium and equilibrium problems: a variational inequality approach (with L. Zhao), ORSA/TIMS National Meeting, October 29-31, 1990, Philadelphia, Pennsylvania.

- Variational inequalities and equilibrium programming, ORSA/TIMS National Meeting, October 29-31, 1990, Philadelphia, Pennsylvania.
- Human migration networks (with J. Pan and L. Zhao), North American Meetings RSAI, November 9-11, 1990, Boston, MA.
- Massively parallel algorithms for the computation of spatial price equilibria (with D. S. Kim and A. Eydeland), North American Meetings RSAI, November 9-11, 1990, Boston, MA.
- Network equilibrium models, applications, and computations, North American Meetings RSAI, November 9-11, 1990, Boston, MA.
- Computation of large scale constrained matrix problem: the Splitting Equilibration Algorithm (with A. Eydeland and D. S. Kim), Supercomputing '90, November 12-15, 1990, NY, NY.
- Human migration networks with class transformations (with J. Pan and L. Zhao). Festschrift in honor of Martin Beckmann, WRSA meeting, February 24-27, 1991, Monterey, CA.
- Parallel computation of large-scale dynamic market network equilibria via time period decomposition (with D.S. Kim), ORSA/TIMS National Meeting, May 6-8, 1991, Nashville, Tennessee.
- A stochastic, dynamic airline network equilibrium model (with F. Soumis), TRISTANI, Montreal, Quebec, June 8-11, 1991.
- A network model and algorithm for the analysis and estimation of financial flow of funds (with M. Hughes), the Meetings of the Society for Economic Dynamics and Control, Capri, Italy, June 18-20, 1991.
- A massively parallel algorithm for the computation of economic equilibria (with D. S. Kim), the International Conference on Industrial and Applied Mathematics, Washington, DC, July 8-12, 1991.
- The formulation and computation of a policy model for U.S. credit reform (with M. Hughes), the International Conference on Industrial and Applied Mathematics, Washington, DC, July 8-12, 1991.
- The formulation and computation of generalized goal programming problems (with S. Thore and J. Pan), 14th International Mathematical Programming Symposium, Amsterdam, the Netherlands, August, 1991.
- Formulation and computation of general financial equilibrium (with Q. Dong and M. Hughes), Second Waterloo CGE Modeling Conference, Waterloo, Canada, October 25-26, 1991.
- Parallel computation of network equilibria (with D.S. Kim), ORSA/TIMS Anaheim Meeting, November 3-6, 1991.
- Human migration networks (with J. Pan and L. Zhao), ORSA/TIMS Anaheim Meeting, November, 3-6, 1991.
- Formulation and computation of financial equilibrium (with M. Hughes), ORSA/TIMS Anaheim Meeting, November 3-6, 1991.
- Parallel decomposition of dynamic market network equilibria (with D.S. Kim), ORSA/TIMS Anaheim Meeting, November 3-6, 1991.
- Massively parallel implementation of the Splitting Equilibration Algorithm, Conference on Computer Science/Operations Research Interfaces, Williamsburg, VA, January, 1992.

- Formulation and computation of general financial equilibrium (with J. Dong and M. Hughes), ORSA/TIMS Orlando Meeting, April 26-29, 1992.
- Generalized goal programming and variational inequalities. Conference on Computational Economics, Austin, Texas, May 17-19, 1992.
- Parallel computation of financial equilibrium problems and variational inequalities (with J. Dong). Meetings of the Society for Economic Dynamics and Control, Montreal, Quebec, June 10-12, 1992.
- Parallel implementation of the Splitting Equilibration Algorithm for the computation of constrained matrix and spatial price equilibrium problems (with D.S. Kim), Meetings of the Society for Economic Dynamics and Control, Montreal, Quebec, June 10-12, 1992.
- Modeling transportation goal and targets in economic markets via variational inequalities (with S. Thore and J. Pan), World Conference on Transport Research, Lyons, France, June 30-July 3, 1992.
- Computable general financial equilibrium with policy interventions (with J. Dong), Third CGE Modeling Conference, Waterloo, Ontario, October 24-25, 1992.
- Massively parallel computation of spatial price equilibria, ORSA/TIMS San Francisco Meeting, November 2-4, 1992.
- Parallel computation of financial equilibria, ORSA/TIMS San Francisco Meeting, November 2-4, 1992.
- Networks and general financial equilibrium (with J. Dong), North American Meeting of RSAI, Chicago, Illinois, November 13-15, 1992.
- Recent results for variational inequalities; plenary lecture, Optimization Days, Montreal, Quebec, May 12-14, 1993.
- Dynamical systems and variational inequalities (with P. Dupuis), ORSA/TIMS Chicago Meeting, May 16-19, 1993.
- Parallel computation of spatial price equilibria and variational inequalities, ORSA/TIMS Chicago Meeting, May 16-19, 1993.
- Towards massively parallel computation of variational inequalities as dynamical systems, Society for Economic Dynamics and Control Meeting, June 22-25, 1993, Napflio, Greece.
- Massively parallel computation of dynamical models and variational inequalities (with P. Dupuis), ORSA/TIMS Phoenix Meeting, October 31-November 3, 1993.
- General financial equilibrium with transaction costs: variational inequality approach (with J. Dong), ORSA/TIMS Phoenix Meeting, October 31-November 3, 1993.
- Massively parallel computation of network equilibria as solution to dynamical systems, ORSA/TIMS Boston Meeting, April 24-27, 1994.
- A multi-stage network equilibrium model of migration (with J. Pan), ORSA/TIMS Boston Meeting, April 24-27, 1994.
- Formulations and computation of general financial equilibrium with transaction costs (with J. Dong), IFACS Workshop on Computational Method in Economics and Finance, Amsterdam, The Netherlands, June 8-10, 1994.
- Formulation and computation of imperfect market general financial equilibrium: Variational inequality approach (with J. Dong), ORSA/TIMS Detroit Meeting, October 23-26, 1994.

- Spatial price equilibrium models with discriminatory ad valorem tariffs: formulation and computation with variational inequalities (with C.F. Nicholson and P.M. Bishop) presented at the American Agricultural Economics Association Annual Meeting, San Diego, CA, August 8-10, 1994.
- Spatial price equilibrium models with discriminatory ad valorem tariffs: formulation and comparative computation using variational inequalities (with C.F. Nicholson and P.M. Bishop) IFACS Workshop on Computational Methods in Economics and Finance, Amsterdam, The Netherlands, June 8-10, 1994.
- Massively parallel computation of portfolio optimization problems, IFACS Workshop on Computational Methods in Economics and Finance, Amsterdam, The Netherlands, June 8-10, 1994.
- On the stability of projected dynamical systems (with D. Zhang), SIAM Annual Meeting, San Diego, California, July 25-29, 1994.
- Formulation analysis, and computation of network equilibrium problems as projected dynamical systems (with D. Zhang), Network Infrastructure and the Urban Environment: Recent Advances in Land-Use/Transportation Modeling, Stockholm, Sweden, August 18-20, 1994.
- On the stability of projected dynamical systems (with D. Zhang), ORSA/TIMS National Meeting, Detroit, Michigan, October 23-26, 1994.
- Stability of an adjustment process for oligopolistic market equilibrium modeled as a projected dynamical system (with D. Zhang), INFORMS National Meeting, Los Angeles, California, May, 1995.
- A projected dynamical systems model of general financial equilibrium with stability analysis (with J. Dong and D. Zhang), INFORMS National Meeting, Los Angeles, California, May 1995.
- International general financial equilibrium modeling and computation with variational inequalities (with S. Siokos), International Conference on Computational Economics and Finance, Austin, Texas, May 21-24, 1995; Society for Economic Dynamics and Control Meeting, Barcelona, Spain, July 3-5, 1995.
- A variational inequality approach for marketable pollution permits (with K. K. Dhanda), presented at the IFORS First Joint International Symposium on Energy Models for Policy and Planning, London, England, July 18-20, 1995.
- General international financial equilibrium modeling and computation with variational inequalities (with S. Siokos), INFORMS National Meeting, New Orleans, Louisiana, October 29-November 1, 1995.
- Variational inequalities for environmental policy modeling of pollution permits (with K. K. Dhanda), INFORMS National Meeting, New Orleans, Louisiana, October 29-November 1, 1995.
- Using variational inequalities to solve spatial price equilibrium models with ad valorem tariffs and activity analysis (with C. Nichols and P. Bishop), INFORMS National Meeting, New Orleans, Louisiana, October 29-November 1, 1995.
- Projected dynamical systems modeling and computation of spatial network equilibria (with D. Zhang and T. Takayama), INFORMS National Meeting, New Orleans, Louisiana, October 29-November 1, 1995.
- On the local and global stability of a route choice adjustment process (with D. Zhang), INFORMS National Meeting, New Orleans, Louisiana, October 29-November 1, 1995.
- Massively parallel computation of dynamic traffic network equilibria as projected dynamical systems (with D. Zhang), Conference on Network Optimization, Gainesville, Florida, February 12-14, 1996.

- Modeling of international financial equilibrium (with S. Siokos), Eastern Economics Association Meeting, Boston, Massachusetts, March 15-17, 1996.
- Formulation and computation of international general financial equilibria and variational inequalities (with S. Siokos), American Mathematical Society Meeting, April 14, 1996, NY, NY.
- Massively parallel computation of dynamic traffic network equilibria modeled as projected dynamical systems (with D. Zhang), Second International Conference on Computing in Economics and Finance, Geneva, Switzerland, June 26-28, 1996.
- Variational inequalities for international financial equilibrium modeling and computation (with S. Siokos), Second International Conference on Computing in Economics and Finance, Geneva, Switzerland, June 26-28, 1996.
- Dynamic multi-sector, multi-instrument financial networks with futures (with S. Siokos), Stockholm Optimization Days, June 24-25, 1996.
- Network equilibria and disequilibria (with D. Zhang), 25th Anniversary of CRT, Universite' de Montre'al, Montre'al, Quebec, Canada, October 10-11, 1996.
- Projected dynamical systems modeling and computation of international financial equilibria (with S. Siokos), INFORMS National Meeting, San Diego, California, May 4-7, 1997.
- Network modeling of international financial equilibria with hedging: statics and dynamics (with S. Siokos), Third International Conference on Computation in Economics and Finance, Stanford University, Stanford, California, June 30-July 2, 1997.
- Static and dynamic modeling of international financial equilibrium with hedging (with S. Siokos), International Mathematical Programming Symposium, Lausanne, Switzerland, August 24-29, 1997.
- Parallel computation of dynamic elastic and fixed demand traffic network problems (with D. Zhang), INFORMS National Meeting, Dallas, Texas, October 26-29, 1997.
- On the equivalence between stationary link flow patterns and traffic network equilibria (with D. Zhang and J. H. Wu), INFORMS National Meeting, Montreal, Quebec, Canada, April 26-29, 1998.
- International financial networks (with S. Siokos), INFORMS National Meeting, Montreal, Quebec, Canada, April 26-29, 1998.
- Dynamic financial networks with futures (with S. Siokos), INFORMS National Meeting, Montreal, Quebec, Canada, April 26-29, 1998.
- Noncompliant oligopolistic firms and marketable pollution permits: statics and dynamics: the case of oligopolistic markets (with K. K. Dhanda), INFORMS National Meeting, Montreal, Quebec, Canada, April 26-29, 1998.
- Modeling financial equilibria with benchmark tracking (with S. Siokos), CEFES98, Cambridge, England, June 29- July 1, 1998.
- On the equivalence between stationary link flow patterns and traffic network equilibria (with D. Zhang and J. H. Wu), INFORMS National Meeting, Seattle, Washington, October 25-28, 1998.
- Marketable pollution permits in multiproduct, multipollutant oligopolistic markets with transaction costs (with K. K. Dhanda), INFORMS National Meeting, Seattle, Washington, October 25-28, 1998.

- Marketable pollution permits and transportation networks, Social Change and Sustainable Transport, Berkeley, California, March 10-13, 1999; also presented at Optimization Days, Montreal, Canada, May 10-12, 1999.
- Financial networks and optimally sized portfolios (with J. Dong), CIFER, NY, March 28-30, 1999.
- Variational inequalities for marketable pollution permits with technological investment opportunities: Case of oligopolistic markets (with K.K. Dhanda), INFORMS National Meeting, May 2-5, 1999.
- Sustainable transportation networks and pollution permits, INFORMS National Meeting, Philadelphia, PA, November 7-10, 1999.
- A multiclass, multicriteria traffic network equilibrium model with elastic demand, INFORMS National Meeting, Salt Lake City, Utah, May, 7-10, 2000.
- Paradoxes in networks with zero emission links: Implications for telecommunications versus transportation (with J. Dong), INFORMS National Meeting, San Antonio, Texas, November 5-8, 2000.
- Dynamics of a transportation pollution permit system with stability analysis and computations (with D. Zhang), INFORMS National Meeting, San Antonio, Texas, November 5-8, 2000.
- Integrated multicriteria network equilibrium models for commuting versus telecommuting (with J. Dong and P. L. Mokhtarian), Regional Science Association International Meeting, Chicago, Illinois, November 9-11, 2000.
- Multicriteria network equilibrium modeling for the Information Age (with J. Dong and D. Zhang), INFORMS National Meeting, Miami Beach, Florida, November 4-7, 2001.
- A space-time network for telecommuting versus commuting decision-making (with J. Dong and P. L. Mokhtarian), INFORMS National Meeting, Miami Beach, Florida, November 4-7, 2001.
- Supply chain networks with competition (with J. Dong and D. Zhang), INFORMS National Meeting, Miami, Florida, November 4-7, 2001.
- A supernetwork model for commuting versus telecommuting (with J. Dong), the 6th Conference of Hong Kong Society for Transportation Studies: Transportation Planning and Management in the 21st Century, Hong Kong, December 2001.
- Supply chain networks with electronic commerce (with J. Dong and D. Zhang), Computing in Economics and Finance, Aix en Provence, France, June 27-29, 2002.
- A supernetwork framework for the dynamics of financial networks with intermediation (with K. Ke), Computing in Economics and Finance, Aix en Provence, France, June 27-29, 2002.
- Supply chain networks with multicriteria decision-makers (with J. Dong and D. Zhang), 15th International Symposium on Transportation and Traffic Theory, Adelaide, Australia, July 16-18, 2002.
- Supply chain supernetworks and environmental criteria (with F. Toyasaki), INFORMS National Meeting, San Jose, California, November 17-20, 2002.
- Supernetworks, the environment, and sustainability (with J. Cruz, T. Fuminori, and D. Matsypura), Managing Massachusetts Environment for the New Millenium, Worcester MA, November 15, 2000.
- Financial networks with electronic transactions: Modeling, analysis, and computation (with K. Ke), INFORMS National Meeting, San Jose, California, November 17-20, 2002; also presented at the

Fifth International Conference on Electronic Commerce Research (ICECR-5) meeting in Montreal, Canada, October 23-27, 2002.

Dynamics of global supply chain supernetworks (with J. Cruz and D. Matsypura), Eight INFORMS Computing Society Conference, Chandler, Arizona, January 8-10, 2003.

International financial networks with intermediation: Modeling, analysis and computations (with J. Cruz), Eight INFORMS Computing Society Conference, Chandler, Arizona, January 8-10, 2003.

Supernetworks: Paradoxes, challenges and new opportunities, First International Conference on the Economic and Social Implications of Information Technology, Washington, DC, January 27-28, 2003.

International financial networks with intermediation and electronic transactions (with J. Cruz), Modeling, Optimizations and Risk Management in Finance, Gainesville, Florida, March 5-7, 2003.

Dynamics of global supply chain supernetworks (with J. Cruz and D. Matsypura), Nectar Conference, Umea, Sweden, June 13-15, 2003.

Reverse supply chain management and electronic waste recycling: A multitiered network equilibrium framework for e-cycling (with F. Toyasaki), INFORMS National Meeting, Atlanta, GA, October 19-22, 2003.

International financial networks with electronic transactions (with J. Cruz), INFORMS National Meeting, Atlanta, GA, October 19-22, 2003.

Supply chain supernetworks with random demands (with J. Dong and D. Zhang), 50th Regional Science Association International Meeting, Philadelphia, PA, November 20-22, 2003.

Influence of Beckmann, McGuire, and Winsten's, **Studies in the Economics of Transportation**, 50th Regional Science Association International Meeting, Philadelphia, PA, November 20-22, 2003.

A supply chain network perspective for electric power generation, supply, transmission, and consumption (with D. Matsypura), CORS/INFORMS International Meeting, Banff, Alberta, Canada, May 16-19, 2004; and The International Conference on Computing, Communication and Control Technologies: CCCT '04, Austin, Texas, August 14-17, 2004.

Supply chain supernetworks with random demands (with J. Dong and D. Zhang), 2nd World Conference on POM, April 30-May 3, 2004, Cancun, Mexico.

A supply chain network economy: Cooperation vs. competition (with J. Dong and D. Zhang), 2nd World Conference on POM, April 30-May 3, 2004, Cancun, Mexico.

Statics and dynamics of global supply chain networks with environmental decision-making (with J. Cruz and F. Toyasaki), CORS/INFORMS International Meeting, Banff, Alberta, Canada, May 16-19, 2004 and The 9th Workshop on Economics and Heterogeneous Interacting Agents, Kyoto University, Kyoto, Japan, May 27-29, 2004.

Projected dynamical systems and evolutionary variational inequalities with application to dynamic traffic (with M.-G. Cojocaru and P. Daniele), The Canadian Mathematical Society Summer 2004 Meeting, Dalhousie University, Halifax, Nova Scotia, June 13-15, 2004; also presented at the INFORMS National Meeting, Denver, Colorado, October 24-27, 2004.

Financial networks with intermediation: Risk management with variable weights (with K. Ke) presented at the INFORMS National Meeting, Denver, Colorado, October 24-27, 2004.

- The co-evolution and emergence of integrated international financial networks and social networks: Theory, analysis, and computations (with J. M. Cruz and T. Wakolbinger), the First POMS College Conference at Columbia University, December 3-4, 2004.
- Dynamic supernetworks for the integration of social networks and supply chains with electronic commerce: Modeling and analysis of buyer-seller relationships with computations (with T. Wakolbinger), Ninth INFORMS Computing Conference, Annapolis, Maryland, January 5-7, 2005.
- Financial engineering of the integration of global supply chain networks and social networks with risk management (with T. Wakolbinger and J. M. Cruz), POMS Operations Management Frontiers: Winds of Change Conference, Chicago, Illinois, April 29-May 2, 2005.
- Networks – the science spanning disciplines, keynote speech, MeshForum, Chicago, Illinois, May 1-3, 2005.
- Projected dynamical systems and evolutionary (time-dependent) variational inequalities via Hilbert spaces with applications (with M.-G. Cojocaru and P. Daniele), SIAM Conference on Optimization, Stockholm, Sweden, May 15-19, 2005.
- Double-layered dynamics: A unified theory of projected dynamical systems and evolutionary variational inequalities (with M.-G. Cojocaru and P. Daniele), SIAM Conference on Optimization, Stockholm, Sweden, May 15-19, 2005.
- Projected dynamical systems and applications (with M.-G. Cojocaru and P. Daniele), SIAM Conference on Optimization, Stockholm, Sweden, May 15-19, 2005.
- A network economic model for supply chain versus supply chain competition (with J. Dong and D. Zhang), 2nd International Workshop for Optimization at Shanghai, Tongji University, Shanghai, China, May 28-30, 2005.
- A network modeling approach for the optimization of Internet-based advertising strategies and pricing with a quantitative explanation of two paradoxes (with L. Zhao), IFORS Conference, Hawaii, July 11-15, 2005.
- A retrospective on Beckmann, McGuire and Winsten's **Studies in the Economics of Transportation** (with D. Boyce and H. S. Mahmassani), INFORMS National Meeting, San Francisco, California, November 13-16, 2005.
- The evolution and emergence of integrated social and financial networks (with T. Wakolbinger and L. Zhao), INFORMS National Meeting, San Francisco, California, November 13-16, 2005.
- Dynamic supply chains, transportation network equilibria, and evolutionary variational inequalities (with Z. Liu), Fifth Annual Florida Supply Chain and Logistics Conference, Gainesville, Florida, February 25-26, 2006; also presented at the Seventeenth Annual POMS Conference, Boston, Massachusetts, April 28-May 1, 2006.
- Modeling generator power plant portfolios and pollution taxes in electric power supply chain networks: A transportation network equilibrium transformation (with K. Wu, Z. Liu, and J. K. Stranlund), Seventeenth Annual POMS Conference, Boston, Massachusetts, April 28-May 1, 2006.
- Global supply chain dynamics with multicriteria decision-makers under risk and uncertainty (with D. Matsypura), Seventeenth Annual POMS Conference, Boston, Massachusetts, April 28-May 1, 2006.
- Optimal endogenous carbon taxes for electric power supply chains with power plants (with Z. Liu and T. Woolley), Computing in Economics and Finance Conference, Limassol, Cyprus, June 22-24, 2006.

- Equilibria, supernetworks, and evolutionary variational inequalities (with Z. Liu), Computing in Economics and Finance Conference, Limassol, Cyprus, June 22-24, 2006.
- A network equilibrium framework for Internet advertising: Models, qualitative analysis, and algorithms (with L. Zhao), IFORS Conference, Hong Kong, June 25-28, 2006.
- Static and dynamic transportation network equilibrium reformulations of electric power supply chain networks with known demands (with Z. Liu, M.-G. Cojocaru, and P. Daniele), 21st European Conference on Operations Research, Reykjavik, Iceland, July 2-5, 2006.
- Optimal endogenous carbon taxes for electric power supply chains with power plants (with Z. Liu and T. Woolley), INFORMS Annual Meeting, Pittsburgh, PA, November 5-8, 2006.
- Financial engineering of the integration of global supply chain networks and social networks with risk management (with J. M. Cruz and T. Wakolbinger), INFORMS Annual Meeting, Pittsburgh, PA, November 5-8, 2006.
- Financial networks with intermediation and transportation network equilibria: A supernetwork equivalence and reinterpretation of the equilibrium conditions with computations (with Z. Liu), INFORMS Annual Meeting, Pittsburgh, PA, November 5-8, 2006.
- Dynamic electric power supply chains and transportation networks: an evolutionary variational inequality formulation (with Z. Liu, M.-G. Cojocaru, and P. Daniele), INFORMS Annual Meeting, Pittsburgh, PA, November 5-8, 2006.
- Spatially differentiated trade of permits for multipollutant electric power supply chains (with T. Woolley and J. K. Stranlund), INFORMS Annual Meeting, Pittsburgh, PA, November 5-8, 2006; also presented at the 7th Meeting in Game Theory and Practice Dedicated to Energy, Environment, and Natural Resources, Montreal, Canada, May 28-30, 2007, and at the INFORMS International Puerto Rico Conference, July 8-11, 2007.
- Modeling of electric power supply chain networks with fuel suppliers via variational inequalities (with D. Matsypura and Z. Liu), International Association of Energy Economics Conference, Wellington, New Zealand, February 18-21, 2007.
- A unified network performance measure with importance identification and the ranking of network components (with Q. Qiang), 4th International Computational Management Science Conference, Geneva, Switzerland, April 20-22, 2007.
- A transportation network efficiency measure that captures flows, behavior, and costs with applications to network component importance identification and vulnerability (with Q. Qiang), 2007 POMS Meeting, Dallas, Texas, May 3-7, 2007; also presented at the 2007 Computing in Economics and Finance (CEF) Conference, Montreal, Canada, June 14-16, 2007, and at the World Conference in Transport Research (WCTR), Berkeley, California, June 24-28, 2007.
- Sustainable supply chain networks and transportation (with Z. Liu and T. Woolley), 2007 POMS Meeting, Dallas, Texas, May 3-7.
- Multiperiod competitive supply chain networks with inventorying and a transportation network equilibrium reformulation (with Z. Liu), 2007 POMS Meeting, Dallas, Texas, May 3-7, 2007.
- An efficiency measure for dynamic networks with application to the Internet and vulnerability analysis (with Q. Qiang), 2007 Computing in Economics and Finance (CEF) Conference, Montreal, Canada, June 14-16, 2007.
- A unified network efficiency/performance measure (with Q. Qiang), INFORMS International Puerto Rico Conference, July 8-11, 2007.

An efficiency measure for dynamic networks with application to the Internet and vulnerability analysis (with Q. Qiang), INFORMS National Meeting, Seattle, Washington, November 4-7, 2007 and the North American RSAI Meeting, Savannah, Georgia, November 8-11, 2007.

Dynamic modeling of the Internet via evolutionary variational inequalities with vulnerability analysis, Microeconomics Dynamics Mini-conference, Caltech, Pasadena, CA, May 23-25, 2008.

Environmental impact assessment of transportation networks with degradable links in an era of climate change (with Q. Qiang and L. Nagurney), Third International Conference on Financing Transport Infrastructure, Paris, France, June 19-20, 2008; also presented at the INFORMS National Meeting, Washington, DC, October 12-15, 2008.

An integrated electric power supply chain and fuel market network framework: Theoretical modeling with empirical analysis for New England (with Z. Liu), 14th Conference on Computing in Economics and Finance, Paris, France, June 26-28, 2008; also presented at the INFORMS National Meeting, Washington, DC, October 12-15, 2008.

A relative total cost index for the evaluation of transportation network robustness (with Q. Qiang), INFORMS National Meeting, Washington, DC, October 12-15, 2008.

Supply chain network models for humanitarian logistics: Identifying synergies and vulnerabilities (with Q. Qiang and T. Woolley), INFORMS National Meeting, Washington, DC, October 12-15, 2008.

Environmental and cost synergy in supply chain network integration (with T. Woolley), INFORMS National Meeting, Washington, DC, October 12-15, 2008.

Evolutionary variational inequalities and the Internet (with D. Parkes and P. Daniele), 20th International Symposium on Mathematical Programming, Chicago, Illinois, August 23-28, 2009.

Modeling of supply chain risk under disruptions with performance measurement and robustness analysis (with Q. Qiang and J. Dong), 20th International Symposium on Mathematical Programming, Chicago, Illinois, August 23-28, 2009.

Formulation and analysis of horizontal mergers among oligopolistic firms with insights into the merger paradox, 20th International Symposium on Mathematical Programming, Chicago, Illinois, August 23-28, 2009.

An integrated electric power supply chain and fuel market network framework: Theoretical modeling with empirical analysis for New England (with Z. Liu), 20th International Symposium on Mathematical Programming, Chicago, Illinois, August 23-28, 2009.

Formulation of mergers among oligopolistic firms with insights into the merger paradox, INFORMS National Meeting, San Diego, California, October 11-14, 2009.

Conference Organizing Committee

1997 International Meeting of the Society for Computational Economics, Stanford U., Stanford, CA, June, 1997.

TRISTAN III, San Juan, Puerto Rico, June, 1998.

1998 International Meeting of the Society for Computational Economics, Computing in Economics and Finance Cambridge, England, June 29-July 1, 1998.

1999 International Meeting of the Society for Computational Economics, Computing in Economics and Finance, Boston College, Chestnut Hill, MA, June 24-26, 1999.

2002 Computing in Economics and Finance, Aix en Provence, France, June 27-29, 2002.

Computational Management Science, Chania, Greece, May 27-30, 2003.

2003 Computing in Economics and Finance, Seattle, WA, July 11-13, 2003.

2004 Computing in Economics and Finance, Amsterdam, The Netherlands, July 8-10, 2004.

2nd International Conference on Computational Management Science, Gainesville, Florida, March 31-April 3, 2005.

2005 Computing in Economic and Finance, Washington, DC, June 23-25, 2005.

3rd International Conference on Computational Management Science, Amsterdam, The Netherlands, May 17-19, 2006.

2006 Computing in Economics and Finance, Limassol, Cyprus, June 22-24, 2006.

4th International Conference on Computational Management Science, Geneva, Switzerland, April 20-22, 2007.

2008 Computing in Economics and Finance, Paris, France, June 26-28, 2008.

Workshop/Conference Organizer:

International Workshop on Computational Management Science, Economics, Finance and Engineering, Limassol, Cyprus, March 28-30, 2003.

MKIDS Mini-Workshop, Supernetworks Laboratory for Computation and Visualization, Isenberg School of Management, University of Massachusetts, Amherst, September 10, 2003.

Supernetworks for the Management of Knowledge Intensive Dynamic Systems, with Tina Wakolbinger, The Fourth International Conference on Knowledge, Culture and Change in Organizations, University of Greenwich, London, United Kingdom, August 3-6, 2004.

Dynamic Networks: Behavior, Optimization and Design, an Exploratory Seminar, with David Parkes, Radcliffe Institute for Advanced Study, Harvard University, Cambridge, Massachusetts, October 20-21, 2006.

Complex Networks - Equilibrium and Vulnerability Analysis with Applications, with Patrizia Daniele, part of Fulbright Senior Specialist Award in Business Administration to Anna Nagurney, Department of Mathematics and Computer Sciences, University of Catania, Italy, March 10-12, 2008.

Humanitarian Logistics: Networks for Africa, Rockefeller Foundation Bellagio Center Conference, Lake Como, Italy, May 5-9, 2008.

Chairperson/Organizer Invited Session:

Session: Computation of large-scale equilibria, ORSA/TIMS St. Louis Meeting, October 25-28, 1997

Session: Equilibrium models and algorithms, ORSA/TIMS NYC Meeting, October 16-18, 1989.

Session: Network equilibrium models, algorithms, and applications, ORSA/TIMS Las Vegas Meeting, May 1990.

Session: Advances in equilibrium theory, modeling and applications, ORSA/TIMS Philadelphia Meeting, October 29-31, 1990.

Session: Memorial session in honor of Stella Dafermos, National RSAI Meeting, Boston, November 9-11, 1990.

Session: Variational inequalities in regional science, National RSAI Meeting, Boston, November 9-11, 1990.

Session: Supercomputing and parallel processing I and II, ORSA/TIMS Nashville Meeting, May 6-8, 1991.

Session: Equilibrium analysis and computation, ORSA/TIMS Anaheim Meeting, November 5-7, 1991.

Session: Financial networks, ORSA/TIMS Orlando Meeting, April 27-29, 1992.

Session: Computation of economic equilibria, ORSA/TIMS San Francisco, November 6-9, 1992.

Session: Advances in variational inequality modeling and applications, ORSA/TIMS Chicago Meeting, May 16-19, 1993.

Session: High performance computing in economics and econometrics, Society for Economic Dynamics and Control Meeting, Nafplio, Greece, June 22-25, 1993.

Session: Computational finance I and II, IFACS workshop on computational methods in economics and finance, Amsterdam, The Netherlands, June 8-10, 1994.

Session: Supercomputing applications in economics, IFACS workshop on computational methods in economics, and finance, Amsterdam, The Netherlands, June 8-10, 1994.

Session: New directions in computational economics and finance, INFORMS National Meeting, New Orleans, Louisiana, October 29-November 1, 1995.

Session: Dynamics and equilibria, Computing in Economics and Finance, Geneva, June 26-28, 1996.

Session: Tools for international finance, Computing in Economics and Finance, Geneva, June 26-28, 1996.

Session: Computation of economic equilibria, INFORMS San Diego Meeting, May 4-7, 1997.

Session: Parallel computation and transportation applications, INFORMS Dallas Meeting, October 26-29, 1997.

Session: Variational inequalities and projected dynamical systems with applications, INFORMS National Meeting, Montreal, Canada, April 26-29, 1998.

Session: Variational inequalities and finance, CEFES98, Cambridge, England, June 29-July 1, 1998.

Session: Sustainable transportation networks, INFORMS National Meeting, San Antonio, Texas, November 5-8, 2000.

Sessions: Network economics I and II, Computing in Economics and Finance, Aix en Provence, France, June 27-29, 2002.

Session: Innovations in financial and economic networks, INFORMS National Meeting, Atlanta, Georgia, October 19-22, 2003.

Session: Reverse logistics and the environment, INFORMS National Meeting, Atlanta, Georgia, October 19-22, 2003.

Session: Critical infrastructure networks, CORS/INFORMS International Meeting, Banff, Alberta, Canada, May 16-19, 2004.

Session: New models and tools for energy and environmental decision-making, CORS/INFORMS International Meeting, Banff, Alberta, Canada, May 16-19, 2004.

Session: Minisymposium on projected dynamical systems and evolutionary variational inequalities with applications, Eight Conference on Optimization, Stockholm, Sweden, May 15-19, 2005.

Sessions I and II: 50th Anniversary of **Studies in Economics of Transportation**, INFORMS National Meeting, San Francisco, California, November 13-16, 2005.

Session: Supply chains and the environment, INFORMS International Puerto Rico, Puerto Rico, July 8-11, 2007.

Session: Transportation and climate change, INFORMS National Meeting, Washington, DC, October 12-15, 2008.

Session: Transportation network vulnerability and performance assessment, INFORMS National Meeting, Washington, DC, October 12-15, 2008.

Session: Game theory and variational inequalities, 20th International Symposium on Mathematical Programming, Chicago, Illinois, August 23-28, 2009.

Invited Seminar Presentations:

1. Stability, sensitivity analysis, and the computation of competitive network equilibria, presented at the IE/OR Department, University of Massachusetts Amherst, October 1984.
2. A network formulation of market equilibrium problems and variational inequalities with some sensitivity analysis results, presented at the Institute of Mathematics and its Applications, University of Minnesota, Minneapolis, Minnesota, June 1984.
3. Competitive equilibrium problems and variational inequalities, presented at the Applied Math Center, University of Massachusetts, Amherst, Massachusetts, March 1985.
4. A general, dynamic spatial price equilibrium model with gains and losses, presented at the Department of Mathematics, Royal Institute of Technology, Stockholm, Sweden, October 1986.
5. A general, dynamic network spatial price equilibrium model with gains and losses, The Technological Institute, Departments of Civil Engineering and Regional and Urban Planning, Northwestern University, Evanston, Illinois, April 10, 1987.
6. Equilibration algorithms for constrained matrix and spatial price equilibrium problems, Departments of Civil Engineering, Regional Science, and Supercomputer Center, University of Illinois, Urbana, Illinois, August 5, 1987.
7. Competitive equilibrium problems and variational inequalities, IE/OR Department, University of Massachusetts Amherst, November 18, 1987.

8. Equilibrium problems and variational inequalities, presented at the OR Seminar, University of Delaware, Newark, Delaware, March 3, 1988.
9. Networks and variational inequalities in the analysis of competitive markets with policy interventions, presented at the Operations Research Center Seminar Series, MIT, Cambridge, Massachusetts, October 12, 1989.
10. Serial and parallel equilibration of large-scale constrained matrix problems presented at the Optimization Group Seminars Series, Department of Mathematics, Linköping University, Linköping, Sweden, October 27, 1989.
11. Transportation network equilibrium and related applications presented at the Optimization Group Seminar Series, Department of Mathematics, Linköping University, Linköping, Sweden, October 30, 1989.
12. Traffic network equilibrium, presented at the Urban and Regional Economics Seminar Series, Department of Economics, Harvard University, Cambridge, Massachusetts, November 7, 1989.
13. Networks and variational inequalities in the analysis of competitive markets with policy interventions, Operations Research Seminar Series, Graduate School of Industrial Administration, Carnegie-Mellon University, Pittsburgh, Pennsylvania, December 12, 1989.
14. Traffic network equilibrium and related applications, presented at the Economic Institute, Erasmus University, Rotterdam, The Netherlands, January 19, 1990.
15. Variational inequalities and networks in the formulation and computation of large-scale market disequilibrium problems, Microeconomic Theory Seminar, joint with RUTCOR, Rutgers University, New Brunswick, New Jersey, February 20, 1990.
16. Networks and variational inequalities in the analysis of competitive markets, Applied Math Seminar, University of Massachusetts Amherst, October 2, 1990.
17. A Splitting Equilibration Algorithm for the computation of large-scale constrained matrix problems, Geography Department, University of Illinois at Urbana-Champaign, January 25, 1991 (also presented at the Krannert Graduate School of Management, Purdue University, West Lafayette, Indiana, February 1, 1991).
18. Parallel computation of large-scale dynamic market network equilibria via time period decomposition, Urban Transportation Center and University Computing Center, University of Illinois at Chicago, March 8, 1991 (also presented at Worcester Polytechnic Institute, School of Management and Mathematical Sciences Department, Worcester, Massachusetts, March 22, 1991).
19. Competitive networks and variational inequalities - from transportation to finance, Distinguished Theory Center Lecture, Cornell University, Ithaca, New York, April 30, 1991.
20. Generalized goal programming and variational inequalities, Centre de Recherche sur les Transports, Université de Montreal, Montreal, Quebec, Canada, October 10, 1991.
21. Variational inequalities and parallel computation - from transportation to finance. Distinguished Lecturer Colloquium, Department of Mathematical Sciences, Clemson University, Clemson, South Carolina, March 24, 1992.
22. General financial equilibrium and variational inequalities, Department of Mathematical Sciences, Clemson University, Clemson, South Carolina, March 25, 1992.

23. Human migration networks, Department of Mathematical Sciences, Clemson University, Clemson, South Carolina, March 26, 1992.
24. Variational inequalities and parallel computation, Special Applied Math Seminar, Division of Applied Mathematics, Brown University, Providence, Rhode Island, April 22, 1992.
25. Large-scale computation in management science, Department of Chemical Engineering, University of Massachusetts Amherst, April 30, 1992.
26. Recent advances in dynamical systems and variational inequalities with application to economics, Helsinki School of Economics, Helsinki, Finland, March 18, 1993.
27. Projected dynamical systems and variational inequalities: from transportation to finance, Divisions of Systems Theory and Optimization and Regional Planning Seminar series, Royal Institute of Technology, Stockholm, Sweden, October, 1996, also presented at the University of Copenhagen, Denmark, November, 1996.
28. Variational inequalities and dynamical systems: from transportation to finance, Mathematics Seminar, Department of Mathematics and Statistics, University of Massachusetts Amherst, March 11, 1997.
29. Networks as links between operations research and other disciplines, presented at the Operations Research Seminar Series at MIT, November 18, 1999.
30. Networks for fun and profit, Math-Physics-Technical Section of the Shevchenko Scientific Society, New York, May 20, 2000.
31. Teleshopping versus shopping: A multicriteria network equilibrium framework, Department of Civil and Environmental Engineering, University of Massachusetts Amherst, October 13, 2000.
32. Complex network systems: Decision-making in the Information Age, United Technologies Research Center, Hartford, Connecticut, January 17, 2001.
33. Multicriteria network equilibrium modeling for decision-making in the Information Age with applications to teleshopping and telecommuting, Electrical, Computer, and Systems Engineering Department, Rensselaer Polytechnic Institute, Troy, New York, December 5, 2001.
34. Network economics: An overview and challenges, John F. Kennedy Institute, Free University, Berlin, Germany, June 6, 2002.
35. Supernetworks and multicriteria decision-making with applications to telecommuting and teleshopping, ETH, Zurich, Switzerland, June 13, 2002.
36. Supernetworks: Decision-making for the 21st century, Department of Mechanical and Industrial Engineering, University of Massachusetts Amherst, November 10, 2003; also presented at the Department of Industrial and Systems Engineering, Virginia Polytechnic University and State University, Blacksburg, VA, February 12, 2004.
37. Supernetworks: Decision-making for the 21st century, IE Colloquium, Department of Industrial Engineering, University of Wisconsin, Madison, February 27, 2004.
38. Supernetworks, evolutionary variational inequalities, and projected dynamical systems, joint with P. Daniele and M.-G. Cojocar, The Bellagio Center Seminar Series, Rockefeller Foundation, Bellagio, Italy, March 19, 2004.
39. Supernetworks: Decision-making for the 21st century, Deans' Council Meeting, University of Massachusetts Amherst, May 4, 2004.

40. Invited seminar, Supernetworks: Decision-making for the 21st century, University of Pittsburgh, Pittsburgh, PA, November 11, 2004.
41. Social networks: New paradigms for modeling, applications, computations, and visualization (with T. Wakolbinger), Fall 2004 UMASS Amherst Operations Research / Management Science Seminar Series, November 19, 2004.
42. Double-layered dynamics: A unified theory of projected dynamical systems and evolutionary variational inequalities, Transportation Center seminar, Northwestern University, Evanston, Illinois, February 24, 2005.
43. Supernetworks: Decision-making in the 21st century, Division of Engineering Special Seminar, Brown University, Providence, Rhode Island, March 15, 2005.
44. Dynamic networks with applications, Radcliffe Institute for Advanced Study, Harvard University, Cambridge, Massachusetts, November 9, 2005.
45. The evolution and integration of social and financial networks with supply chains, Cambridge Colloquium on Complexity and Social Networks, Kennedy School of Government, Harvard University, Cambridge, Massachusetts, December 12, 2005.
46. Dynamic networks: Recent results and applications, Distinguished Industrial Engineering and Operations Research and Decision, Risk, and Operations Seminar Series, Columbia University, New York, September 19, 2006.
47. Transportation science and the dynamics of critical infrastructure networks, Department of Civil and Environmental Engineering - Transportation Program, University of Massachusetts Amherst, December 7, 2006.
48. Multi-agent network models, dynamics and applications to vulnerability analysis, The Agent-Based Modeling Seminar Series, Department of Urban Studies and Planning, MIT, Cambridge, Massachusetts, April 4, 2007.
49. Critical infrastructure networks and supernetworks: New tools for dynamics, network efficiency measurement, and vulnerability identification, Systems Engineering Seminar, Imperial College, London, United Kingdom, April 24, 2007.
50. Transportation science and the dynamics of critical infrastructure networks with applications to performance measurement and vulnerability analysis, The Warren Lecture, Department of Civil Engineering, University of Minnesota, Minneapolis, October 5, 2007.
51. Vulnerability analysis of complex networks from transportation networks to the Internet and electric power supply chains, Fulbright Senior Specialist Lecture, Department of Mathematics and Computer Sciences, University of Catania, Italy, March 10, 2008.
52. Equilibrium modeling and vulnerability analysis of complex network systems: Which nodes and links really matter? Center for Women in Mathematics, Smith College, Northampton, MA, September 23, 2008.
53. To merge or not to merge: Multimarket supply chain network oligopolies, coalitions, and the merger paradox, Fogelman College of Business and Economics, University of Memphis, Memphis, Tennessee, October 30, 2008.
54. Synergies and vulnerabilities of supply chain networks in a global economy, Distinguished Lecture, Fogelman College of Business and Economics, University of Memphis, Tennessee, October 31, 2008; also presented at the INFORMS Dallas/Forth Worth Chapter, Texas, February, 2009; at the

Vienna University of Business and Economics, Vienna, Austria, March 10, 2009, and at Cornell University, Ithaca, New York, April 1, 2009.

55. Synergies and vulnerabilities of supply chain networks in a global economy: What we can learn from half a century of advances in transportation, Institute of Transportation Studies, University of California Davis, May 1, 2009; presented via videoconference.

Invited Tutorials:

Variational inequalities in network equilibrium analysis and computation (with S. Dafermos), ORSA/TIMS National Meeting, Vancouver, British Columbia, Canada, May 8-10, 1989.

Projected dynamical systems and network equilibrium problems, the Canadian Operations Research Society Meeting, Calgary, Canada, May 24, 1995.

Fragile networks: identifying vulnerabilities and synergies in an uncertain age, ALIO – INFORMS Joint International Meeting, Buenos Aires, Argentina, June 6-9, 2010.

Invited Workshop Papers:

Dynamic models of spatial price equilibrium with computational results, presented at the European Summer Institute in Regional Science at the University of Umea, Umea, Sweden, June 1986.

Computational comparisons of spatial price equilibrium methods, presented at the European Summer Institute in Regional Science at the University of Umea, Umea, Sweden, June 1986.

Modeling and algorithmic development in competitive equilibrium problems, Wellesley College, Wellesley, Massachusetts, July 1986.

Overview of algorithms and models for competitive equilibrium problems, Cornell University, Ithaca, New York, August 1986.

A general, dynamic spatial price network equilibrium model with gains and losses, presented at the NATO Advanced Research Workshop in Mathematical Programming, Bergen, Norway, June, 1987.

Network decomposition schemes for the solution of the constrained matrix problem (with A. Robinson), presented at the NATO Advanced Research Workshop in Mathematical Programming, Bergen, Norway, June, 1987.

Variational inequalities and the computation of large-scale equilibria, presented at the Applied General Equilibrium Workshop, Stanford, California, March 11-12, 1988.

Equilibrium programming and variational inequalities with application to economics, IBM Europe University Supercomputing Summer Institute, Oberlech, Austria, August 1-5, 1988.

Disequilibrium, networks, and variational inequalities, Seminar on Transportation Networks and Regional Development, Institute of Socio-Economic Problems, Academy of Sciences, USSR, Leningrad, May 23-26, 1989.

Spatial markets with rigid prices, networks, and variational inequalities, presented at the Interfaces Between Microeconomic Theory and Operations Research Workshop, Brussels, Belgium, January 15-16, 1990.

Advanced computer architectures and general financial equilibrium, IBM Europe Summer Institute, Oberlech, Austria, July 26-30, 1992.

A dynamical systems approach for network oligopolies and variational inequalities, Mallacoota Seminar on the Network Economy, Mallacoota, Australia, December 1992.

Supply chain networks and electronic commerce, STELLA ICT, Innovation, and Transport Workshop, NSF, Arlington, VA, January 15-17, 2002.

Knowledge supernetworks: The modeling and management of the dynamics of complex business processes under risk and uncertainty, joint with J. Dong, NSF MKIDS Workshop, Arlington, VA, September 10-11, 2002.

Supernetworks: Decision-making in the new era, NSF/DOD MKIDS Workshop, Baltimore, MD, September 15-17, 2003.

Management of knowledge intensive systems as supernetworks: Modeling, Analysis, Computations, and Applications, joint with J. Dong, NSF/DOD MKIDS Workshop, Baltimore, MD, September 15-17, 2003.

Dynamics of global supply chain supernetworks in a new era of risk and uncertainty, joint with D. Matsyura, STELLA Workshop, National Science Foundation, Arlington, VA, January 15-16, 2004.

Dynamic supernetworks for the co-evolution and emergence of integrated social and economic networks: Modeling, analysis, computations, visualization and applications, joint with J. Dong and T. Wakolbinger, MKIDS '04 Conference, September 20-22, 2004.

On the relationship between supply chain and transportation network equilibria: A supernetwork equivalence with computations, Workshop on Mathematical Models for Optimizing Transportation Services, University of Auckland, New Zealand, April 19-22, 2005.

On the relationship between supply chain and transportation network equilibria: A supernetwork equivalence with computations, NSF-sponsored Workshop on Network Science, Nonlinear Science, and Infrastructure Systems, Penn State University, University Park, PA, May 9-11, 2005.

Dynamic networks: Recent results and applications, Radcliffe Institute for Advanced Study Exploratory Seminar, Radcliffe Institute, Harvard University, Cambridge, MA, October 20-21, 2006.

Environmental and cost synergy in supply chain network integration in mergers and acquisitions, joint with T. Woolley, Fulbright Senior Specialist Workshop, Complex Networks -- Equilibrium and Vulnerability Analysis with Applications, University of Catania, Italy, March 12, 2008.

To merge or not to merge: Multimarket supply chain network oligopolies, coalitions, and the merger paradox, Workshop on Frontiers in Game Theory and Networked Control Systems, MIT, Cambridge, MA, October 10-12, 2008.

Poster Presentations:

Supernetworks: the why, the how, and applications, Statistics on Networks Workshop, National Academy of Sciences, Washington, DC, September 26-27, 2005.

An efficiency measure for dynamic networks with application to the Internet and vulnerability analysis, with Q. Qiang, SIAM Conference on Optimization, Boston, MA, May 10-13, 2008.

An integrated electric power supply chain and fuel market network framework: Theoretical modeling with empirical analysis for New England, with Z. Liu, SIAM Conference on Optimization, Boston, MA, May 10-13, 2008.

Environmental and cost synergy in supply chain network integration in mergers and acquisitions, with T. Woolley, SIAM Conference on Optimization, Boston, MA, May 10-13, 2008.

Invited Workshop and Institute Attendance:

Workshop on the Application and Solution of Economic Equilibrium Models, Center for Economic Policy Research, Stanford University, June 25-27, 1984.

European Advanced Summer Institute of CERUM, Umea, Sweden, June 9-28, 1986.

NSF Workshop on "Improving the Breadth of the Research Community in Operations Research," Wellesley, Massachusetts, July 8-11, 1986.

1986 Supercomputer Summer Institute at Cornell University, Ithaca, New York, July 28-August 15.

NATO Advanced Research Workshop "Algorithms and Problem Formulations in Mathematical Programming," Chr. Michelsen Institute in Bergen, Norway, June 15-19, 1987.

Symposium on Parallel Optimization, University of Wisconsin, Madison, August 10-12, 1987.

1990 Connection Machine Summer Institute, NPAC, Syracuse, New York, July.

1993 Supercomputer Workshop, NCSA, University of Illinois at Urbana-Champaign, August.

NSF Workshop on Connecting Research and Policy in the Digital Economy, Arlington, Virginia, January 29, 2003.

National Academy of Science Workshop on Statistics of Networks, Washington, DC, September 26-27, 2005.

Invited Colloquy:

On the Coming Transformation of Travel, Rensselaerville, New York, June 1-3, 2005.

Invited Panels:

Opportunities and prospects for using supercomputers in regional science, Regional Science Association National Meeting, November 6-8, 1987, Baltimore, Maryland.

Prospects and opportunities for large-scale computing, CISER conference on "Innovations in Social Science Computing," November 11-13, 1987, Cornell University, Ithaca, New York.

Computing for land use and transportation analysis, Advanced Computing for the Social Sciences, April 10-12, 1990, Williamsburg, Virginia.

A fresh look at computational testing, National ORSA/TIMS Meeting, May 7-9, 1990, Las Vegas, Nevada.

Computation in the curriculum, Conference on Graduate Programs in the Applied Mathematical Sciences II, Clemson University, Clemson, South Carolina, April 16-18, 1993.

Parallel & Supercomputing, INFORMS National Meeting, Dallas, Texas, October 26-29, 1997.

A retrospective on the Beckmann, McGuire, and Winsten (1956) book, Studies in the Economics of Transportation, 50th Regional Science Association International Meeting, November 20-22, 2003.

3rd NSF-ENG Cyberinfrastructure Workshop – Research Opportunities in Cyberengineering and Cyberinfrastructure, Drexel University, Philadelphia, Pennsylvania, April 22-23, 2004.

Panel on Writing, Radcliffe Institute for Advanced Study, Harvard University, Cambridge, Massachusetts, December 13, 2005.

Women in Science Panel, sponsored by the Massachusetts Association for Women in Science, UMass RL&D, CPPA, the Virtual Center for Supernetworks, with support from the UMass Amherst INFORMS Student Chapter, and NEAGAP, UMass, Amherst, April 17, 2007; gave a presentation entitled, "What professional societies can do from the top down."

Panelist -- Mind the Gap! Career Summit for Women & Technology, Amherst, MA, September 27, 2007.

Panelist -- Dual Careers -- Challenges and Creative Solutions, INFORMS National Meeting, Seattle, Washington, November 4-7, 2007.

Panelist – Traffic: From Insects to Interstates, World Science Festival, NYC, June 12, 2009.

Invited Undergraduate Lecture:

Operations research and the captivating study of networks and complex decision-making, part of the Fulbright Senior Specialist Award to Anna Nagurney, in Patrizia Daniele's undergraduate Optimization course, Department of Mathematics and Computer Sciences, University of Catania, Italy, March 13, 2008.

Lecture Series Organizer:

1988-1989 Distinguished Women in Operations Research and Engineering Lecture Series, MIT, Cambridge, MA.

Faculty Advisor -- Lecture Series:

UMASS Amherst Operations Research / Management Science Speaker Series organized by the INFORMS Student Chapter, 2004 - present. The Chapter was awarded the Annual Summa Cum Laude Award from INFORMS on November 6, 2007 at the INFORMS National Meeting in Seattle, Washington and the Annual Magna Cum Laude Award from INFORMS on October 14, 2008 at the INFORMS National Meeting in Washington, DC. The chapter received the Annual Summa Cum Laude Award from INFORMS on October 13, 2009 at the INFORMS National Meeting in San Diego, California.

This lecture series has hosted, to-date, approximately 70 speakers.

Membership in Professional Societies:

Society of Industrial and Applied Mathematicians
 American Mathematical Society
 Institute for Operations Research and the Management Sciences
 Transportation & Logistics Society of INFORMS
 The New York Academy of Sciences
 Regional Science Association International
 Econometric Society
 Society for Computational Economics

University (and Other) Teaching Experience:

Teaching at the University of Massachusetts:

CHEM E 445: Chemical Process Design (with M. Malone)
 FOMGT 341: Transportation and Logistics
 FOMGT 348: Advanced Operations Management
 FOMGT 353: Management Science
 FOMGT 456: Management Science Applications

SOM 632: Introduction to Computers and Information Systems
 SOM 751: Introduction to Management Science
 SOM 821: Management Science I
 SOM 822: Management Science II
 SOM 823: Mathematical Programming
 SOM 825: Management Science Doctoral Seminar
 SOM 895: Decision Support Systems

Teaching at the University of Innsbruck (Austria):

Network Economics, March-June, 2002
 Financial Networks, March-June, 2002
 Sustainable Transportation, March-June, 2002.

Teaching at the Massachusetts Institute of Technology:

1.207 Transportation Network Equilibrium Analysis, Spring, 1989.

Teaching at Cornell University:

Variational Inequalities and Equilibrium Programming, Supercomputer Summer Institute Workshop, 1998.

Teaching at the Summer University of Southern Stockholm (Sweden)

Short Course-Network Economics, August, 1994.

Teaching at the Royal Institute of Technology (KTH, Sweden)

Variational Inequalities and Projected Dynamical Systems, Fall, 1996.

Teaching at the World Bank, Washington, DC:

Network Economics, June, 2008.

Teaching at Harvard University:

Portfolio Optimization, July, 2009.

Member Ph.D. Committees (University of Massachusetts Amherst):

Narendra Mulani, School of Management
 Ajit Kumar, School of Management
 Charles Robinson, School of Management
 Abbas Abedian, Department of Industrial Engineering and Operations Research
 Thomas Abraham, School of Management
 Marie Wright, School of Management
 Jinghua Xu, Department of Civil and Environmental Engineering
 Bryan Horling, Computer Science Department
 Diogo Souza Monteiro, Department of Resource Economics
 Shenghan Xu, Isenberg School of Management
 Jin Yue, Department of Mechanical and Industrial Engineering

Chair Ph.D. Dissertations:

Dae-Shik Kim, Title: Parallel computation of large-scale network equilibria and variational inequalities, School of Management, University of Massachusetts Amherst, 1992.

June Dong, Title: Formulation and computation of general financial equilibrium: variational inequality approach, School of Management, University of Massachusetts Amherst, 1994.

Ding Zhang, Title: Projected dynamical systems: Stability analysis and computation with applications to transportation and economic systems, Department of Industrial Engineering and Operations Research, University of Massachusetts Amherst, 1996.

Kanwalroop Dhanda, Title: Environmental policy modeling and computation: A variational inequality approach, School of Management, University of Massachusetts Amherst, 1997.

Stavros Siokos, Title: International multi-sector, multi-instrument financial modeling and computation: Statics and dynamics, Department of Industrial Engineering and Operations Research, University of Massachusetts Amherst, 1998.

Padma Ramanujam, Title: Transportation network policy modeling for congestion and pollution control: A variational inequality approach, School of Management, University of Massachusetts, Amherst, 1999. (Thesis was awarded the 1999 Transportation Science Section of INFORMS Dissertation Prize.)

Jose M. Cruz, Title: International financial networks and global supply chains: A unified framework for decision-making, optimization, and risk management, Isenberg School of Management, University of Massachusetts Amherst, 2004.

Ke Ke, Title: Statics and dynamics of complex network systems: Supply chain analysis and financial networks with intermediation, Isenberg School of Management, University of Massachusetts Amherst, 2004.

Fuminori Toyasaki, Title: A unified complex network framework for environmental decision-making with applications to green logistics and electronic waste recycling, Isenberg School of Management, University of Massachusetts Amherst, 2005.

Dmytro Matsypura, Title: Dynamics of global supply chain and electric power networks: models, pricing analysis, and computations, Isenberg School of Management, University of Massachusetts Amherst, 2006.

Tina Wakolbinger, Title: A dynamic theory for the integration of social and economic networks with applications to supply chain and financial networks, Isenberg School of Management, University of Massachusetts, Amherst, 2007.

Zugang Liu, Title: Transportation and dynamic networks: Models, theory, and applications to supply chains, electric power and financial networks, Isenberg School of Management, University of Massachusetts Amherst, 2008.

Qiang Qiang, Title: Network efficiency/performance measurement with vulnerability and robustness analysis with application to critical infrastructure, Isenberg School of Management, University of Massachusetts Amherst, 2009.

Trisha Woolley, Title: Sustainable supply chains: Multicriteria decision-making and policy analysis for the environment, Isenberg School of Management, University of Massachusetts Amherst, 2010.

Co-Chair Ph.D. Dissertations:

Jie Pan, Title: Variational inequalities in the modeling and computation of spatial economic equilibria: Structural reformulations and the method of multipliers, Department of Mathematics and Statistics, University of Massachusetts Amherst, 1992.

External Doctoral Opponent:

J. H. Wu, University of Montreal, Canada
 Nils Jacob Berland, University of Bergen, Norway
 William Chung, University of Waterloo, Canada
 Mette Bjorland, Norwegian School of Economics and Business Administration, Bergen, Norway

Oral Examiner of Doctoral Dissertation:

Andrea Raith, University of Auckland, New Zealand

Present Doctoral Students:

Amir Masoumi, Min Yu

Master's Committee Membership:

Jyotti Murthy, Chair (HRTA)
Sharon Romanski Young

Independent Study Supervisor:

Christina Calvaneso
Christopher Bardi
Dmytro Matsypura
Jeff Gallbraith
Carl Chimi
Charles Robinson
Lilly Lancaster
Debbie Hertz
Robert Gladchuck
Sam Sokolosky
Scott Golemund
William Brandt
Mary Bailey
Linda Kennedy
Dae-Shik Kim
Kathy Dhanda
Vidya Shankar Thumsi
Min Yu

Teaching Honors:

Finalist for Distinguished Teaching Award, 1999
Nominated for Distinguished Teaching Award by graduate students 1984, 1987, 1991, 1997, 1998, 2003
Nominated for Distinguished Teaching Award by undergraduate students 1988

Service at the University of Massachusetts Amherst:

Chairperson SOM Mathematics Committee, 1984-1987
SOM Adhoc Computer Committee, 1984-1986
SOM Ph.D. Policy Committee, 1987-1988, 1990-1991, 1991-1992, 1992-1993, 1993-1994, 1994-present
SOM Personnel Committee, 1986-1988
General Business & Finance Chair Search Committee, 1988
General Business & Finance Personnel Committee, 1985-6, 1993-94
General Business & Finance Personnel Committee, Alternate 1984-5
General Business & Finance Travel Committee Chair, 1985-6, member 1984-5
General Business & Finance Management Science Recruiting Committee, 1985-6, 1986-7
General Business & Finance Managerial Economics Recruiting Committee, 1986-7
General Business & Finance Management Science Ph.D. Revision Committee, 1986-7
Chancellor's Talent Award Sponsor, 1984, 1985
University of Massachusetts Research Council, 1993-present
University of Massachusetts Press Committee, 1992-present
Strategic Planning Committee for Research and Graduate Education, 1993-present
IE/OR - FOMGT Committee, 1994
Finance and Operations Management Search Committee, 1997-1998
Dean of NSM Search Committee, 2000
Provost's Distinguished Professorships Advisory Committee, 2000-present

Isenberg Chair Professor Search Committee, 2001
 University of Massachusetts Faculty Mentor, 2001-present
 Ad Hoc Committee to meet with Vice Chancellor for Research candidates, 2003
 Distinguished Faculty Lecture Series Committee, 2003 - 2005
 Provost Search Committee, 2004
 Faculty Advisor – INFORMS Student Chapter at UMASS Amherst, 2004 - present
 Dean of Commonwealth College Search Committee, 2006
 Chair -- Faculty Search Committee, Two positions in Operations Management, 2007-2008
 Finance and Operations Management Department Personnel Committee, Alternate -- 2007-2008
 UMass Amherst Research Commons Committee, 2008
 Member of the Search Committee for the Dean of the Isenberg School of Management, 2008-2009

External Service -- Referee for:

National Science Foundation
 Natural Sciences and Engineering Research Council
 Swedish Research Council
 Science Foundation of Ireland
 U. S. Civilian Research and Development Foundation
 Hong Kong Science Foundation
Operations Research
Management Science
Networks
Transportation Science
Transportation Research (B, C, D, E)
Journal of Optimization and its Applications
Regional Science and Urban Economics
Journal of Economics and Business
International Regional Science Review
Annals of Regional Science
Papers in Regional Science
Mathematical Programming
Operations Research Letters
European Journal of Operational Research
Journal of Regional Science
ORSA Journal on Computing
INFOR - Canadian Journal of Operational Research and Information Processing
Socio-Economic Planning Sciences
IEEE Transactions on Automatic Control
Computational Economics
Journal of Economic Dynamics and Control
Netnomics
Optimization Letters
Optimization
International Journal of Sustainable Transportation
Europhysics Letters
Automatica
Games and Economic Behavior

National Service:

Transportation Supply Analysis Committee, National Research Council, 1989-1991; 1991-1994; 1994-1997.

Transportation Science Section of the Operations Research Society of America, Councillor, 1989-1991.

National Science Foundation Advisory Panel for Advanced Scientific Computing, 1990-1992.

Chair - Committee of Visitors, Division of Advanced Scientific Computing, National Science Foundation, 1990.

Transportation Science Section Dissertation Prize Committee, 1990, 1991.

Chair - Transportation Science Section Dissertation Prize Committee, 1992.

Workshop on Computational Economics, National Science Foundation, March 6, 1991.

Cornell National Supercomputer Facility National Allocation Committee, 1990-1995. National Science Foundation Panel: Special CAREER Award Transportation, March 1, 1996, Arlington, VA.

Robert Herman Transportation Science Section Lifetime Achievement Prize Committee, 1995, 1998, 2001.

Computer Science Technical Section of INFORMS Prize Committee, 1997.

Chair, Computer Science Technical Section of INFORMS Prize Committee, 1998.

National Science Foundation Panel; KDI-NCC, Arlington, VA, August 3-5, 1998.

Girls, Inc., National Economic Literacy Advisory Board, 1999-

National Science Foundation Panel; URI, Arlington, VA, October 22-23, 1998.

National Science Foundation Panel; PAESMEM, May 13-14, 1999.

Chair - 2000 Robert Herman Lifetime Achievement Prize in Transportation Science.

National Science Foundation - Committee of Visitors – Programs on Gender Equity and People with Disabilities, May 3-4, 2000.

National Science Foundation Panel; ITR, Arlington, Virginia, April 23-24, 2001.

INFORMS speaker with the INFORMS Speaker Bureau, 2004-

National Science Foundation Panel; Human and Social Dynamics, Arlington, Virginia, June 24-25, 2004.

National Science Foundation Panel, Human and Social Dynamics, Arlington, Virginia, May 26-27, 2005.

National Science Foundation Panel, Human and Social Dynamics, Arlington, Virginia, May 15-16, 2006.

Chair - Ad Hoc Committee on Diversity; INFORMS, July 2006 -- January 2007.

National Science Foundation Panel, Engineering Research Centers, Arlington, VA, August 1-2, 2007.

Editor-in-Chief of *Transportation Science* Search Committee of INFORMS, 2008.

Chair of the 2009 WORMS (Women in Operations Research and the Management Sciences) Award.

Member of Subdivisions Council, INFORMS, 2009-present.

International Service:

- Councilor - International Regional Science Association, 1989-1991.
- Discipline Advisory Committee for Fulbright Scholar Awards in Management Information Systems, July 1995 - July 1999.

- Committee Member, Fudan Premier Prize in Management Science, Shanghai, China, 2006.
- Advisory Board Member, Computational Optimization, Econometrics, and Finance (COMISEF) project, funded by the European Union, 2006-present.
- Advisory Council Member of the Society for Computational Economics, 2007-2010.
- Advisory Committee - 2nd International Conference on Transportation Logistics (T-LOG), July 4-7, 2007, Shenzhen, China.

Book Series Editorships:

Advances in Computational Economics, Co-Editor with H. Amman, Springer (formerly Kluwer Academic Publishers).

New Dimensions in Networks, Edward Elgar Publishing.

Book Series Editorial Board

Advances in Computational Management Science, Springer (formerly Kluwer Academic Publishers).

Journal Editorships:

Co-Editor – *Netnomics*, 2003 – 2006.

Associate Editor - Special Issue of *Operations Research* on Stochastic Models in Transportation.

Associate Editor - *Operations Research Letters* (1990-2002).

Associate Editor - *The International Journal of High Performance Computing*.

Associate Editor - *Computational Economics*, formerly *Computer Science in Economics and Management*.

Associate Editor - *Annals of Regional Science*.

Associate Editor - *Networks*.

Associate Editor - *Computational Management Science*.

Associate Editor - *Journal of Economic Dynamics and Control*, (2000-2008).

Associate Editor - *The Journal of Financial Decision Making*.

Associate Editor - *International Journal of Sustainable Transportation*.

Associate Editor - *Optimization Letters*.

Associate Editor - *International Transactions in Operational Research* (ITOR).

Associate Editor -- *Journal of Computational Optimization in Economics and Finance*. Newsletter Editorship:

Editor – *Supernetwork Sentinel*, The Newsletter of the Virtual Center for Supernetworks; see: <http://supernet.som.umass.edu>