

LINDA R. PETZOLD

Place of Employment

Linda Petzold
Dept. of Computer Science, and Dept. of Mechanical Engineering
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Education and Degrees

Ph.D. in Computer Science, Mathematics minor, University of Illinois (UIUC), 1978

B.S. in Math and Computer Science, University of Illinois (UIUC), 1974

Professional Career

1997-present	Professor, Department of Computer Science (Chair 2003-2007) Professor, Department of Mechanical Engineering, Director, Computational Science and Engineering Graduate Emphasis, University of California, Santa Barbara
1991-1997	Professor, Department of Computer Science, Fellow, Minnesota Supercomputer Institute University of Minnesota
1986-1993	Adjunct Professor, Department of Computer Science, University of Illinois at Urbana-Champaign
1985-1991	Group Leader, Numerical Mathematics Group, Lawrence Livermore National Laboratory, Livermore, California
1978-1985	Member of Technical Staff, Applied Mathematics Division, Sandia National Laboratories, Livermore, California
1983	Visitor, Department of Computer Science, Stanford University

Awards

Fellow, ACM, 2011

UCSB Faculty Research Lecturer (highest honor awarded by UCSB faculty to one of its members), 2011

Fellow, SIAM, 2009

Fellow, ASME, 2008

Rensselaer Polytechnic Institute Department of Mathematics Richard C. DiPrima Lecturer, 2008.

AMSI (Australia Mathematical Sciences Institute) Lecturer, 2007-08

ISI Highly Cited Researcher, 2006

Fellow, AAAS, 2005

Member, National Academy of Engineering, 2004

AWM/SIAM Kovalevsky Prize, 2003

Dahlquist Prize, 1999

JSPS Fellowship for Research in Japan, 1994

Wilkinson Prize for Numerical Software, 1991

Professional Activities

DOE PCASE Panel, 2011.

SIAM Representative to AAAS Mathematics Section, 2011-2014.

AAAS Electorate Nominating Committee, Section on Mathematics, 2011-2014.

SIAM Block Lecturer committee

Chair, Committee of Visitors, DOE Applied Mathematics Program, 2010.

Panelist, IMAG (Interagency Modeling and Analysis Group) Futures Meeting: The Impact of Modeling on Biomedical Research, 2009.

Advisory Committee, 2010 and 2011 Q-bio conferences.

Prize Committee, ICIAM Pioneer Prize, 2009-2010.

NSF/OCI Task Force on Grand Challenge Communities, Co-chair of Education section, 2009-2010.

Scientific Review Panel, Pacific Institute for the Mathematical Sciences (PIMS), Canada, 2009-2013.

Member, DOE Advanced Scientific Computing Advisory Committee (ASCAC), 2009-2014

DOE Applied Mathematics Laboratory Review Panel, 2009.

Oak Ridge National Laboratory Center for Nanophase Materials Sciences Division Advisory Committee (2009-2014).

University of Texas at Austin, Institute for Computational Engineering and Sciences Board of Visitors, 2009–

Communications of the ACM (CACM) editorial board, 2008–2009.

Director, UCSB ICB (Institute for Collaborative Biotechnologies) Outreach Program, 2007–

SIAM Special Interest Group on CSE, nominating committee for officers, 2008.

Scientific Advisory Board Member, UC Irvine Center for Complex Biological Systems, 2008–

WTEC International Assessment of Simulation-Based Engineering and Science, Study Group, 2007-2009.

DOE ASCR Applied Mathematics Advisory group, 2007–, coauthor of report Applied Mathematics at the U.S. Department of Energy: Past, Present and a View to the Future, <https://e-reports-ext.llnl.gov/pdf/358004.pdf>

Co-Chair, 2009 FOSBE Meeting

CACHE (Computer Aids for Chemical Engineering), Board of Trustees, 2007–

DOE OASCR Communications Project (OCP) Editorial Board member, 2007–

Board of Scientific Governors, Mathematical Biosciences Institute, Ohio State University, 2007–2009.

Scientific Advisory Board member, Stanford Simbios center, 2006-2010.

PCAST Networking and Information Technology Technical Advisory Group, 2006-2008.

Editorial Board, M2AN: Mathematical Modeling and Numerical Analysis, 2006-present, Co-editor of Special Issue: Numerical ODEs Today, 2009.

SIAM Journals Committee, 2006-present.

NSF Workshop on CyberInfrastructure in Chemical and Biological Process Systems: Impact and Directions, participant in workshop and report, 2006.

CRA Computing Image Task Force, 2005-present.

NSF Simulation Based Engineering Science(SBES) Blue Ribbon Panel, 2005-2006.

Computing Sciences Division Review Committee, Lawrence Berkeley National Laboratory, 2005.

NAE Committee on Engineering Education, 2004-2007.

Chair, 2005 AWM-SIAM Kovalevsky Prize Committee.

NSF MPS Cyberscience Workshop, Breakout Group Leader, 2004.

Committee of Visitors, DOE ASCR, 2004.

Co-Organizer (with Tom Hou), DOE Multiscale Workshop. Coauthor of report, 2004.

Organizing Committee, IPAM/IWT Leadership Workshop, UCLA IPAM, 2003-2004.

2004 AWM-SIAM Kovalevsky Prize committee.

Organizing Committee, International Conference on Scientific Computing and Differential Equations (SciCADE05), 2003-present.

Board on Mathematical Sciences, National Research Council, 2001-2004.

UCLA IPAM (Institute for Pure and Applied Mathematics) Board of Trustees, 2002-2005.

Chair, Dahlquist Prize Committee, 2003.

Chair, SIAM/ACM Computational Science Prize committee, 2003.

Organizing Committee, SIAM Annual Meeting, 2004.

Organizing Committee, SIAM Workshop on Computational Sciences, Mathematics and Engineering, 2003.

Editorial Board, Electronic Journal of Mathematical and Physical Sciences, 2002-present.

Editorial Board, Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal, 2001-present.

Co-organizer (with O. Ghattas and D. Keyes), SIAM Conf. on Computational Science and Engineering, 2003.

Advisory Board for Test Set for IVP Solvers, University of Bari, Italy, 2001-present.

Coalition for Women in Computing, SIAM Representative, 2001-present.

NSF CISE Advisory Committee, 2001-2003.

SIAM Vice President at Large, 2000-2001.

SIAM Committee on Science Policy, 2000-present.

Organizing Committee, SIAM Annual Meeting, 2001.

University of California Office of the President, Review Committee for Campus-Laboratory Collaborations proposals, 2001-2003.

Program Committee, Hybrid Systems: Computation and Control (HSCC2002), Stanford, 2002.

Computation Directorate Advisory Committee, Lawrence Livermore National Laboratory, 2001.

International program committee for ICIAM 2003.

Member of panel on Applications of Mathematics in the Sciences, 2002 International Congress of Mathematics, Beijing.

Co-Organizer, First Southern California Applied Mathematics Symposium, 2001.

Member, External Advisory Panel, RPI Applied Mathematics Vigre program, 2000-present.

SIAM Conference Strategic Planning Committee, 2000.

UC Davis, Visiting Advisory Committee on Computational Science and Engineering, 2000.

SIAM, Chair of Computational Science and Engineering education working group, 1998-2001.

SIAM, Education Committee, 1998-2007.

Co-organizer (with G. Strang and S. Ashby), SIAM Conf. on Computational Science and Engineering, 2000.

Co-organizer (with U. Ascher, G. Bock, K. Burrage, A. Iserles, R. Russell), SciCADE01, Scientific Computing and Differential Equations, to be held Vancouver, British Columbia, 2001.

Co-organizer (with M. Dahleh) UCSB Workshop on Control and Computation, 1998.

Faculty search committee, Norwegian University of Science and Technology, Trondheim, Norway, 1998-1999.

SIAM Vice President for Publications, 1993-1998.

NSF Experimental Software Systems Panel, 1998.

Co-organizer (with R. März), Oberwolfach Conference on Numerical Methods for Differential-Algebraic Equations, 1995.

Review Committee for Mathematics and Computer Science Division, Argonne National Laboratory, 1995-2000.

Editorial Board, SIAM J. on Scientific and Statistical Computing, 1983-1989, 1995-2004.

Editorial Board, Computers and Mathematics with Applications, 1993-2011.

Editorial Board, Mathematics and Computers in Simulation, 1998-2005.

Organizing Committee, SciCADE95, Scientific Computing and Differential Equations, Stanford University, 1995.

Editor in Chief, SIAM J. on Scientific Computing, 1990-1994.

SIAM Council, 1988-1993, Council Representative to Board of Trustees, 1992-1993, Executive Committee, 1992-1993.

NSF Committee of Visitors, 1993.

Organizing Committee, SIAM National Meeting, 1993.

Organizing Committee, SIAM Meeting on Parallel Processing, 1993.

Co-Organizer (with S. Campbell and K. Clark), ARO Workshop on Real-Time Sim-

ulation of Multibody Systems, 1992.

NSF HPCC Grand Challenges Panel, 1992.

NSF NYI Panel in Mathematical Sciences, 1992.

Member of Panel for NIST Computing, National Research Council, 1988-1991.

ACM SIGNUM Secretary-Treasurer, 1987-1989.

SIAM Representative to AMS-ASA-IMS-NCTM-SIAM-MAA Joint Committee on Women in the Mathematical Sciences, 1984-1993.

ACM SIGNUM Board of Directors, 1983-1985.

Grants

Army/UARC: Systems Biology of Coagulation and Trauma-Induced Coagulopathy, L. Petzold, PI, (\$1,185,924, 9/30/10-9/29/13).

NIH: Mechanisms and Modeling of Networked Circadian Pacemaker Synchronization, L. Petzold, PI, (\$336,000, 10/1/11-7/31/15).

NSF: Collaborative Research: Next-Generation Algorithms for Stochastic Spatial Simulation of Cell Polarization, L. Petzold, PI, (\$989,865, 10/1/10-9/30/14).

Army/UARC: Systems Biology Studies of PTSD, F. Doyle, PI, (\$540,945, 04/01/2009-03/31/2012).

Pfizer: Insulin Resistance Pathways Project, F. Doyle, PI, Consortium involving Pfizer, UCSB, MIT, Caltech. (\$1,380,000, 01/31/08-01/31/11).

NIH: An Open and Scalable Stochastic Simulation Library for Biology, M. Stalzer, PI (Caltech), (\$1,785,681, 5/1/07-9/30/11).

NIGMS: Multiscale Modeling and Analysis of Circadian Rhythm Generation and Synchronization in the Suprachiasmatic Nucleus, L. Petzold, PI, (\$945,908, 05/01/06-04/30/11).

Army/UARC: Multiscale Computational Modeling of Metabolic Insulin Signaling Pathways, L. Petzold, PI, (\$80,000, 10/01/08-03/31/11).

Army/UARC: Sensitivity Analysis and Discrete Stochastic Simulation of Biochemical Networks, F. Doyle, PI, (\$405,675, 10/02/06-11/30/11).

NSF ITR-(ASE+SIM): Computational Toolbox for the Investigation of Multiscale Surface Processes, L. Petzold, PI, (\$1,225,000, 9/1/04-8/31/10).

NIH: Distributed Stochastic Modeling and Application to Protein Interactions in the Early Secretory Pathway, A. Robinson, PI (\$456,750 (UCSB budget), 4/1/05-3/31/10).

DOE Multiscale Algorithms for Biochemical Systems, L. Petzold, PI, (\$574,247, 9/1/04-6/30/12).

Army/UARC: Network Inference and Experimental Design from Time-Series Mi-

acrossarray Data, L. Petzold, PI, (\$280,000, 12/12/08-11/30/11).

ARO ICB: Towards the Development of Multiscale Simulation of a Bacterial Phosphorelay Sensory Transduction System, L. Petzold, PI, (\$86,152, 2/1/06-9/1/08).

NSF-ITR-COLLAB: Theory and Software Infrastructure for a Scalable Systems Biology, M. Khammash, PI, (\$575,000, 12/15/03-11/30/07).

Army ICB: Towards the Multiscale Simulation of Biochemical Networks, M. Khammash and L. Petzold Co-PIs, (\$124,130, 9/1/03-1/31/05).

Army ICB: Sensitivity Analysis for Discrete Stochastic Simulation of Biochemical Networks, F. Doyle and L. Petzold, Co-PIs, (\$156,898, 9/1/03-1/31/06).

IGERT: Development of a Graduate Education Program in Computational Science and Engineering with Emphasis on Multiscale Problems in Fluids and Materials, NSF, L. Petzold PI, (\$3,374,065, 07/11/02-11/30/12).

NSF MRI: Acquisition of a High Performance Central Computing Facility at UCSB, PI F. Brown, CoPIs H. Metiu, L. Petzold, R. Sugar (\$443,719, 08/01/03-07/31/06).

ITR/AP: Enabling Microscopic Simulators to Perform System-Level Analysis, (Y. Kevrekidis, Princeton, PI), NSF, (\$650,000 (UCSB budget), 08/15/02-07/31/05).

Computational Analysis Tools for Multiscale Engineering Systems, NCSA, (\$50,000, 01/01/02-12/31/02).

A Novel and Radically Integrated Approach to the Biology of Intra-Cellular Networks and Systems, ARPA (subcontract to Caltech, PI J. Doyle), UCSB PI L. Petzold, Co-PI J. Carlson, (\$420,000, 09/01/01-08/31/04).

NSF ITR/ACS: Computational Infrastructure for Microfluidic Systems with Applications to Biotechnology, (\$2,900,000, 9/1/00-8/30/05), PI L. Petzold, CoPIs N. MacDonald, E. Meiburg, C. Meinhart, I. Mezic, M. Tirrell and T. Yang.

Sensitivity Analysis and Assessment of Model Errors for Large Scale Differential Algebraic Systems, DOE, (\$287,349, 8/15/00-8/14/04).

Sensitivity and Uncertainty Analysis for Large-Scale Differential-Algebraic Systems, LLNL ISCR, (\$35,445, 10/1/00-9/30/01).

KDI: Structure Preserving Algorithms and Model Reduction in the Natural Sciences, NSF, (\$1,629,000, 10/1/98-6/30/02), PI J. Marsden (Caltech), CoPIs B. Minster, L. Petzold, S. Shkoller, D. Holme, J. M. Hyman.

From Power Laws to Power Grids: a Mathematical and Computational Foundation for Complex Interactive Networks, EPRI, (\$7,500,000, 1/1/99-1/1/02), PI J. Doyle (Caltech), CoPIs R. Bagrodia, C. Beck, J. Carlson, M. Chandy, M. Cross, M. Gerla, S. Lall, B. Lesieutre, J. Marsden, F. Paganini, L. Petzold, G. Verghese.

Sensitivity and Uncertainty Analysis for Large-Scale Differential-Algebraic Systems, LLNL ISCR, (\$30,000, 10/1/99-9/30/00).

Algorithms and Software for Sensitivity Analysis of Large-Scale Differential-Algebraic Systems, LLNL ISCR, (\$35,000, 10/1/98-9/30/99).

Virtual Integrated Processing of YBCO Thin Films, NSF/ARPA, (\$2,996,179, 3/1/97-6/30/00), PI D. Goodwin (CalTech), CoPIs H. Atwater, K. Bhattacharya, W. E. L. Greengard, R. Kee, R. Kohn, R. Murray, M. Ortiz, L. Petzold.

A High-Performance Problem-Solving Environment for Optimization and Control of Chemical and Biological Processes, NSF (Multidisciplinary Challenge) (\$2,200,000, 10/1/95-9/30/00), PI L. Petzold, CoPIs J. B. Rosen and R. Tranquillo (U. of Minn.), J. Flaherty, E. Glinert and B. Szymanski (RPI), and P. Gill (UCSD).

Sensitivity Analysis and Model Reduction of Nonlinear Differential-Algebraic Systems, DOE (\$239,840, 4/15/95-12/30/99).

Effective Numerical Methods for Vehicle Dynamics, ARO DAAH04-96-1-0387, (\$120,000, 6/1/96-6/30/98).

High Performance Numerical Methods and Software, Army High Performance Computing Research Center, Univ. of Minn. (\$118,000, 1/9/95-1/9/96, \$122,000, 1/9/96-1/9/97, \$125,000, 1/9/97-1/9/98).

High Performance Computing, Information Serving, and Data Visualization on Clusters of Shared Memory Multiprocessors, NSF Metacenter Regional Alliance, P. Woodward PI, project participant, \$75,000, 9/16/95- 9/16/98).

Numerical Methods for Differential-Algebraic Equations in Real-Time Integration of Mechanical Systems, funded jointly by ARO DAAL03-92-G-0247 (\$230,100, 6/16/92-6/15/95) and DOE DE-FG02-92ER25130 (\$50,000, 6/1/92-5/31/94).

Parallel Scalable Libraries for Large-Scale Applications, NIST 60NANB2D1272 (ARPA), (\$924,837, 9/1/92-7/15/97), (CoPI, with J. B. Rosen, Y. Saad, A. Sameh, T. Tezduyar).

TACOM Real-Time Simulation of Large-Scale Multibody Systems using Automated Equation Decoupling Techniques, ARO DAAL03-92-G-0409, (\$147,141, 9/28/92-9/27/93), renewal ARO DAAH04-94-G-0208 (\$80,000, 6/1/94-5/31/95).

Problem Formulation and Numerical Algorithms for Highly Oscillatory Mechanical Systems, ARO AASERT DAAH04-94-G-0213, (\$75,000, 9/1/94-8/31/97).

Sensitivity Analysis and Model Reduction for Chemically Reacting Systems, Exxon Research and Engineering Co. (\$10,000 1/1/95-12/30/95)

Parallel Methods and Software for Optimal Control of Differential-Algebraic Systems, University of Minnesota Supercomputer Institute Research Scholar, (\$17,500, 7/1/94-6/30/95), in collaboration with J. B. Rosen.

Numerical Methods and Software for Differential-Algebraic Equations, University of Minnesota Supercomputer Institute Research Scholar, (\$17,500, 7/1/92-6/30/93, renewed \$17,500 7/1/93-6/30/94).

Research Monograph

The Numerical Solution of Initial Value Problems in Differential-Algebraic Equations, Elsevier Science Publishing Co., (1989) (with K. E. Brenan and S. L. Campbell)

bell), second edition, SIAM Classics Series, 1996.

Graduate Textbook

Computer Methods for Ordinary Differential Equations and Differential-Algebraic Equations, SIAM, (1998) (with U. M. Ascher).

Books Edited

Dynamics of Algorithms, Ed. R. de la Llave, L. Petzold and J. Lorenz, Vol. 118 IMA Volumes in Mathematics and its Applications, Springer-Verlag, 1999.

Proceedings of Sixth SIAM Conf. on Parallel Processing for Scientific Computing, Ed. R. Sincovec, D. Keyes, M. Leuze, L. Petzold and D. Reed, 1993.

Ph.D. Students Graduated

Benedict Leimkuhler, University of Illinois, Computer Science, (advised in collaboration with C. W. Gear), Ph.D. 1988, currently Professor, School of Mathematics, University of Edinburgh.

Steven Lee, University of Illinois, Computer Science, (advised in collaboration with P. Saylor and S. Ashby), Ph.D. 1993, currently Department of Energy, Office of Advanced Scientific Computing Research, Washington DC.

Shengtai Li, University of Minnesota, Computer Science (advised in collaboration with J. M. Hyman), Ph.D. 1998, currently researcher, Los Alamos National Laboratory.

Wenjie Zhu, Computer Science, U. of Minnesota, Ph.D. 1998, currently at Guidant Corp., St. Paul, Minnesota.

Soumyendou Raha, Scientific Computing, U. of Minnesota, Ph.D. 2000, currently tenured, Indian Institute of Science, Bangalore.

Yang Cao, Computer Science, University of California Santa Barbara, 2003, currently tenure-track, Virginia Tech.

Andrew Strelzoff, Computer Science, University of California Santa Barbara, 2004, currently Associate Professor, U. Southern Mississippi.

George Mathew, Mechanical Engineering, University of California Santa Barbara, 2006, currently United Technologies Research Center, Berkeley (co-advised with Igor Mezić).

Zheming Zheng, Mechanical Engineering, University of California Santa Barbara, 2007, currently Corning, New York.

Hong Li, Computer Science, University of California Santa Barbara, 2008, currently Teradata, Los Angeles.

Matthew Buoni, Mechanical Engineering, University of California Santa Barbara,

2008, currently lecturer, UCSB.

Stephanie Taylor, Computer Science, University of California Santa Barbara, 2008, currently tenure-track , Colby College, Maryland (co-advised with Frank Doyle).

Sotiria Lampoudi, Computer Science, University of California Santa Barbara, 2008, currently postdoc, UCSB.

Min Roh, Computer Science, University of California Santa Barbara, 2011, currently Intellectual Ventures, Seattle.

M.S. Students Graduated

Timothy Maly, Dept. of Computer Science, U. of Minnesota, 1995

Shengtai Li, Dept. of Computer Science, U. of Minnesota, 1997

Wenjie Zhu, Dept. of Computer Science, U. of Minnesota, 1997

Soumyendou Raha, Scientific Computation, U. of Minnesota, 1997

Douglas Clancey, Dept. of Computer Science, U. of Minnesota, 1998

Andrew Hall, Dept. of Computer Science, UCSB, 2003

Kirsten Meeker, Dept. of Computer Science, UCSB, 2004

Han Chen, Dept. of Computer Science, UCSB, 2004

William Clay, Dept. of Mathematics, UCSB, 2010

Consulting

UC Irvine Center for Complex Biological Systems, Scientific Advisory Board.

COMSOL, Sweden, (solution and sensitivity analysis of large-scale differential-algebraic systems).

Stanford SIMBIOS Center, Scientific Advisory Board.

Xoomsys. Xoomsys, Scientific Advisory Board.

Altair Engineering, Inc.

Los Alamos National Laboratory (sensitivity analysis).

Protein Mechanics, Inc., Scientific Advisory Board.

Avery Dennison, Pasadena (solution and sensitivity analysis of large-scale differential-algebraic systems).

Samsung Corp., Korea, (numerical methods for mechanical systems).

Mechanical Dynamics, Inc., Ann Arbor, Michigan (numerical methods for mechanical systems).

Air Products and Chemicals, Inc., Allentown, Pennsylvania (numerical algorithms and methods for dynamic simulation in LNG plants and adsorption systems).

Lawrence Livermore National Laboratory, Livermore, California (development of numerical methods for solution and sensitivity analysis of large-scale differential-algebraic systems).

RASNA Corporation, San Jose, California (development of numerical methods and software for constrained differential equations arising in rigid body mechanics).

Exxon Research and Engineering Company, Florham Park, New Jersey (numerical algorithms for chemical engineering applications).

Short Courses

Carl-Cranz-Gesellschaft, Munich, West Germany (1988) (co-principal lecturer in short course on numerical solution of differential-algebraic equations)

INRIA/EDF Clamart, France (1992) (principal lecturer in short course on numerical solution of differential-algebraic equations)

With SERC Numerical Analysis Summer School, University of Leicester, England (1994) (principal lecturer in short course on numerical solution of differential-algebraic equations)

Nagoya University, Japan (1994) (principal lecturer in short course on numerical solution of differential-algebraic equations)

IMA, Minnesota (1997) (tutorial on Numerical Analysis of Dynamical Systems program)

Indian Institute of Science, Bangalore (2005) (principal lecturer in short course on Simulation and Analysis of Differential-Algebraic Equation Systems)

ARL/ICB Crash Course in Systems Biology, Berkeley, 2010 (co-organizer and speaker)

Invited Lectures and Seminars – Research

Council of Scientific Society Presidents lecture, December 2011

Faculty Research Lecture, UCSB, December 2011

Colloquium, Department of Mathematics, Pomona College, November, 2011

Workshop on Stochastic Processes in Cell and Population Biology, Mathematical Biosciences Institute, Ohio State University, October, 2011

DOE ASCR Applied Mathematics PI meeting, Washington DC, October, 2011

9th International Conference of Numerical Analysis and Applied Mathematics, Greece, September, 2011

Conference on Stochastic Systems Biology, Monte Verita, Switzerland, July, 2011

SciCADE 2011, Scientific Computing and Differential Equations, Toronto, July 2011

University of California Irvine, Center for Complex Biological Systems Seminar, June 2011

Massachusetts Institute of Technology, Applied Mathematics Seminar, May 2011

Georgia Institute of Technology, College of Computing, Distinguished Lecturer Series, April 2011

University of Illinois, Department of Computer Science, Distinguished Lecturer Series, Champaign Illinois, April 2011

SIMUtools 2011, Plenary talk, Barcelona, Spain, March 2011

Pacific Institute of Mathematical Sciences (PIMS) seminar, University of British Columbia, Vancouver, November 2010

SIAM Conf. on Life Sciences, Minisymposium on Computational Methods for Biochemical Systems, Pittsburgh, July 2010

SIAM Conf. on Life Sciences, Panelist, Lee Segel Forum, Pittsburgh, July 2010

NASA JPL Seminar, Pasadena, June 2010.

Caltech Applied and Computational Mathematics Colloquium, Pasadena, May 2010.

Meeting of the Electrochemical Society (keynote), Vancouver BC, April 2010.

Trans Agency Coagulopathy in Trauma Workshop, NIH, Washington DC, April 2010.

New Mexico Center for the Spatiotemporal Modeling of Cell Signalling, University of New Mexico, March 2010.

Los Alamos National Laboratory, March 2010.

UCSB Probability and Statistics Department Seminar, January 2010.

Oak Ridge National Laboratory, Center for Nanophase Materials Sciences, Discovery Lecture, October 2009.

Bioengineering Insights 2009, Santa Barbara, October 2009.

University of Toronto, Department of Computer Science Distinguished Lecturer Series, Toronto, October 2009.

International Conference on Numerical Analysis and Applied Mathematics (ICNAAM 2009), Crete, Greece, September 2009.

Mathematical Biosciences Institute, Ohio State University, Columbus, September 2009.

Q-Bio Conference on Cellular Information Processing, Santa Fe, New Mexico, July 2009.

PRIMA (Pacific Rim Mathematical Association) Congress, Sydney, Australia, July 2009.

IMACS World Congress, Cairns, Australia (Contributed), July 2009.

Laurier Seminar Series in Computational Science and Applied & Statistical Modelling, Wilfrid Laurier University, Waterloo, Canada, May 2009.

Second International Workshop on Model Reduction in Reacting Flows, Notre Dame, March 2009.

Simon Fraser University, PIMS/CSC Distinguished Lecture Series, Vancouver, March 2009.

US Army Institute for Surgical Research, San Antonio, March 2009.

Florida A&M University, February 2009.

Louisiana State University, Center for Computation and Technology, IT Eminent Lecture Series, January 2009.

Princeton University, Department of Chemical Engineering, December 2008.

Pfizer Insulin Resistance Project Meeting, Boston, November 2008.

AIChE Annual Meeting, Special Session on Overview of An International Assessment of Research and Development in Simulation-Based Engineering and Science, AIChE Annual Meeting, Philadelphia, November 2008.

Technical Universitat Darmstadt, Opening of Graduate School of Computational Engineering, Keynote Lecture, Darmstadt, Germany, November 2008.

Technical Universitat Munich, Department of Mathematics Seminar, Munich, Germany, November 2008.

Lawrence Livermore National Laboratory, Institute for Terascale Simulation 2008 Lecture Series, Livermore, California, October 2008.

University of Sydney Mathematics Department Colloquium, Sydney, Australia, July 2008.

Charles Sturt University Mathematics Department Colloquium, Wagga Wagga, Australia, July 2008.

University of Melbourne Mathematics Department Colloquium, Melbourne, Australia, July 2008.

LaTrobe University Mathematics Department Colloquium, Melbourne, Australia, July 2008.

University of Adelaide Mathematics Department Colloquium, Adelaide, Australia, July 2008.

CSIRO Workshop, Canberra, Australia, July 2008.

CTAC08, The 14th Biennial Computational Techniques and Applications Conference, Canberra, Australia, July 2008 (plenary lecture).

SIAM Annual Meeting, Minisymposium on Multiscale Simulation, July 2008.

Gordon Research Conference, Theoretical Biology and Biomathematics, Il Ciocco, Italy, June 2008.

Uppsala University, Department of Computer Science, May 2008.

Helsinki University of Technology, Perspectives on Numerical Analysis Conference, May 2008 (plenary lecture).

Rensselaer Polytechnic Institute, Department of Mathematics Richard C. DiPrima Lecturer, April 2008.

University of Illinois UIUC, Computational Science and Engineering Annual Research Symposium, April 2008.

University of Minnesota Digital Technology Center, Science and Technology Innovators Lecture, 2008.

ANZIAM 2008, Katoomba, Australia (AMSI lecturer), 2008.

Jackson State University, College of Engineering, 2008.

University of Tokyo, Workshop on Research and Development in Simulation-Based Engineering and Science, 2007.

Caltech, Applied Mathematics Colloquium, Pasadena, 2007.

Caltech, Center for Advanced Computing Research, 2007.

NSF CDI Workshop, Seattle, 2007.

ICSB, International Conference on Systems Biology, plenary lecture, Long Beach, 2007.

University of Illinois (UIUC) Chemical and Biochemical Engineering Department Colloquium, 2007.

SCICADE07, Scientific Computing and Differential Equations, minisymposium on Computational Systems Biology, St. Malo, France, 2007.

Workshop on Stochasticity in Biochemical Reaction Networks, Banff International Research Station, Canada, 2007.

DOE Applied Mathematics Research PI Meeting, Lawrence Livermore National Laboratory, 2007.

Stanford 50: State of the Art and Future Directions of Computational Mathematics and Numerical Computing, Stanford, 2007 (plenary lecture).

211th Electrochemical Society Meeting, Chicago, 2 minisymposium presentations with M. Buoni and Z. Zheng

Panel Discussion, SAMSI Biosystems Modeling Workshop, North Carolina, 2007.

Portland State University, Distinguished Lecture, Maseeh Mathematics and Statistics Colloquium, Portland, 2007.

Society for Biomolecular Engineering, First International Conference on Biomolecular Engineering, San Diego, 2007 (plenary lecture).

Harvard University, Initiative in Innovative Computing Center, Cambridge, 2006.

Feedback and Dynamics in Nature Workshop, Panel on Interdisciplinary Research, San Diego, 2006.

WTEC Simulation-Based Engineering and Science Workshop/Planning Meeting, Washington DC, 2006.

MIT, Distinguished Speaker Series in Computation for Design and Optimization, Cambridge, 2006.

International Conference on Molecular Systems Biology, Munich, Germany, 2006.

CRA Snowbird Conference, Panel on Interdisciplinary Research, Utah, 2006.

UCLA, Institute for Digital Research and Education, Los Angeles, 2006

Arizona State University, Dept, of Computer Science and Engineering, Distinguished Lecture, Phoenix, 2006

Oberwolfach Workshop on Differential-Algebraic Equations, Oberwolfach, Germany, 2006

Workshop on Stochastic Models in Cell Biology, Cornell University, 2006

Caltech Beckman Institute Biological Network Modeling Center, 2006

University of Pennsylvania, Applied Mathematics Colloquium, 2006

UCSB Mathematical Ecology Seminar, 2006

Cornell University, Department of Computer Science, 2006

Air Force - ICB Collaboration Meeting, UCSB, 2006

Chemical Process Control CPC-7 Workshop, Lake Louise, Canada 2006

Amgen, Thousand Oaks, 2005

Caltech, Dept. of Mechanical Engineering, Pasadena, 2005

Pomona College/Claremont Graduate University, Claremont, 2005

Oak Ridge National Laboratory, Distinguished Lecture Series, Oak Ridge, 2005.

University of Tennessee, Distinguished Lecture Series, Knoxville, 2005.

Harvey Mudd College Mathematics Conference, Claremont, 2005.

Scandinavian Conference on Simulation and Modeling, Trondheim, 2005.

Norwegian University of Science and Technology, Dept. of Mathematics, Trondheim, 2005.

Fourth Workshop on Computation of Biochemical Pathways and Genetic Networks, EML Research GMBH, Heidelberg, 2005.

Indian Institute of Technology Bombay, Institute Colloquium, 2005.

Indian Institute of Science Supercomputing Education and Research Center, Bangalore, 2005.

Indian Institute of Science Mathematics Conference, Bangalore, 2005.

Workshop on Stochastic Models in Molecular and Systems Biology, UCSB, 2005.

COSCOMP05, Conference on Scientific Computing, Vienna, 2005.

SciCADE05, International Conference on Scientific Computation and Differential Equations, Minisymposium on Stochastic Systems, Nagoya, 2005.

Workshop on Integrative Multiscale Modeling and Simulation in Materials Science, Fluids and Environmental Science, CRM, University of Montreal, 2005.

Virginia Tech, Interdisciplinary Center for Applied Mathematics (2 lectures), 2005.

UCSB ICB Army-Industry Collaboration Conference, 2005.

UCSB ICB Mini-Workshop, 2005.

Walter Reed Army Institute of Research, 2005.

Fort Detrick Research Institute of Infectious Diseases, 2005.

SIAM Computational Science and Engineering Meeting, plenary lecture, Orlando, Florida, 2005.

SIAM Computational Science and Engineering Meeting, minisymposium lecture, Orlando, Florida, 2005.

Stanford National Center for Biological Computing, 2005

MITACS Environment and Natural Resources Theme Meeting, BIRS, Banff, Canada, 2004 (featured speaker, 2 lectures)

IMA Workshop, Future Challenges in Multiscale Modeling and Simulation, University of Minnesota, Minneapolis, 2004.

Department of Mechanical and Environmental Engineering Seminar, UCSB, 2004.

International Workshop on Complex Stochastic Systems in Biology and Medicine, LMU, Munich, Germany, 2004.

Joining Forces Workshop: Intersections between Biology, Chemistry, Engineering, Informatics and Physics, ETH, Zurich, Switzerland, 2004.

Tutorial lecture, Computational Methods for Large-Scale Simulations of Biological Systems, International Conference on Systems Biology, Heidelberg, Germany, 2004.

MRI-ICB Workshop, UCSB, 2004.

International Conference on Molecular Systems Biology, Tahoe City, California, 2004.

SIAM Annual Meeting, Portland (2 minisymposium lectures), 2004.

University of Delaware, Department of Mathematics, Rees Distinguished Lecture Series (2 lectures), 2004.

Entelos Visit, UCSB ICB, 2004.

DOE Multiscale Workshop, Washington, 2004.

BIRS Workshop on Model Reduction and Matrix Methods, Banff, 2004.

Multiscale Computational Models for Biomedical Research, Workshop, Univ. of California San Diego, 2004

Sandia Workshop on Numerical Aspects of Circuit and Device Modeling, New Mexico, 2004.

GE Global Research, Schenectady, NY, 2004.

University of Michigan, Department of Mathematics, 2004.

ICSB 2003 Workshop on Large Scale Simulations of Biological Systems, St. Louis, 2003.

University of Maryland Baltimore County, Mathematics Department Colloquium, 2003.

Women of Applied Mathematics Research and Leadership, Univ. of Maryland College Park, 2003.

ADAPT '03: Conference on Adaptive Methods for Partial Differential Equations and Large-scale Computation, RPI, 2003.

Workshop on Invariance and Model Reduction for Multiscale Phenomena, ETH, Zurich, 2003.

LLNL Workshop on Solution Methods for Large-Scale Nonlinear Problems, Livermore, CA, 2003

Workshop on Modelling and Simulation in Chemical Engineering, Coimbra, Portugal, 2003

SIAM Annual Meeting, Sonia Kovalevsky Lecture, 2003

ITR Site Visit, Chemical Engineering, Princeton, 2003

SAMSI Workshop on Simulation and Optimization of Porous Media Flow, 2003

SIAM Workshop on Computational Science, Mathematics and Engineering, Washington, 2003

Kavli Institute for Theoretical Physics, UCSB, Santa Barbara, 2003

Oberwolfach Workshop on Numerical Techniques for Optimization Problems with PDE Constraints, Germany, 2003

SIAM Conference on Computational Science and Engineering, Uncertainty Quantification Minisymposium, San Diego, 2003

SIAM Conference on Computational Science and Engineering, Stochasticity in the Simulation of Cellular Behavior and Genetic Regulation Minisymposium, San Diego, 2003

International Workshop on Computational Codes, University of Bari, Italy, 2002.

Opening Workshop of New DFG Research Center "Mathematics for Key Technologies", Berlin, 2002.

Model Reduction for Process Control Workshop, Lund University, 2002.

Challenges for the Chemical Sciences in the 21st Century, Workshop on Information and Communications, National Academy of Sciences, 2002.

AspenWorld2002, Washington DC, 2002.

University of Illinois at Urbana Champaign, Center for Computational Science, and Department of Chemical Engineering (joint seminar), 2002.

Tulane University, Center for Computational Science, 2002.

UCSB Physical Chemistry and Condensed Matter Theory Seminar, 2002.

Lawrence Berkeley National Laboratory, Berkeley, CA, 2002.

Lawrence Livermore National Laboratory, Livermore, CA, 2002.

Sandia National Laboratory, Livermore, CA, 2002.

SIAM Workshop on Validated Computing, Toronto, 2002.

Queen's University, Kingston, Ontario, Depts. of Chemical Engineering and Mathematics joint colloquium, 2002.

UCSB CNSI Brown Bag Seminar Series, 2002.

Sandia CSRI Workshop, Numerical Aspects of Circuit and Device Modeling, Santa Fe, New Mexico, 2002.

Stanford University, Applied Mathematics Seminar, 2002.

Protein Mechanics, Inc., Mountain View, California, 2002.

Mohammed Dahleh Symposium, UCSB, 2002.

Chinese Academy of Sciences, Beijing, China, 2001.

Tsinghua University, Beijing, China, 2001.

Peking University, Beijing, China, 2001.

Scientific and Engineering Computations for the 21st Century, Methodologies and Applications, Toyota Conference, Mikkabi, Japan, 2001.

Modelling and Computation in Chemical Engineering and Biotechnology Workshop, Hohenwart Forum, Germany, 2001.

University of Arizona, Applied Mathematics Colloquium, 2001.

LLNL Sensitivity Analysis Workshop, Livermore, 2001.

SciCADE01, International Conference on Scientific Computation and Differential Equations, Minisymposium on Sensitivity Analysis and Optimization for DAEs and PDAEs, Vancouver, 2001.

SIAM Annual Meeting, Minisymposium on Control, Mission Design, and Satellite Dynamics, 2001.

SIAM Annual Meeting, Minisymposium on Optimal Control Theory, Applications and Methods, 2001.

University of Kentucky, Center for Computational Sciences Colloquium, 2001.

First Sandia Workshop on Large-Scale PDE-Constrained Optimization (invited lecture), Santa Fe, 2001.

California Nano Systems Institute Presentations on Computational Infrastructure for Microfluidics, to Sun, 2001

AIChE Annual Meeting, Los Angeles, 2000 (invited minisymposium lecture).

NSF-KDI/IGPP Workshop 2000 on Accurate Simulation and Modelling of Physical Systems, San Diego, 2000.

University of British Columbia, Institute of Applied Mathematics Distinguished Colloquium Series, 2000

Simon Fraser University, Mathematics Department, 2000

RPI Applied Mathematics Days, 2000

IMACS 2000 World Congress, Lausanne Switzerland (invited minisymposium lecture), 2000

LLNL CASC Workshop on Solution Methods for Large-Scale Nonlinear Problems, Pleasanton CA (2000)

NATO ARW on Computational Aspects of Nonlinear Structural Systems with Large Rigid Body Motions, Pultusk, Poland (plenary lecture) (2000)

Princeton University, Dept. of Chemical Engineering (2000)

Sixth Copper Mountain Conference on Iterative Methods (2000)

UCLA Applied Mathematics Colloquium (2000)

Air Products and Chemicals Corp., Allentown PA (2000)

DARPA Workshop on Virtual Integrated Processing, Charlottesville VA (2000)

MIT Department of Chemical Engineering, Colloquium and Seminar (1999)

IGPP Workshop on Accurate Simulation and Modeling of Physical Systems, UCSD (1999)

IMA Workshop on Mathematical and Computational Strategies for Simplifying Complex Kinetics, Minneapolis (1999)

Nonequilibrium Physics seminar, UCSB (1999)

IMA Workshop on Decision Making under Uncertainty, Minneapolis (1999)

Lawrence Livermore National Laboratory, CASC, Livermore (1999)

SCiCADE99, International Conference on Scientific Computation and Differential Equations, Queensland, Australia (plenary lecture) (1999)

ANODE99, Auckland Numerical Ordinary Differential Equations workshop, Auckland, New Zealand (plenary lecture) (1999)

ICIAM International Meeting, Edinburgh, Java for CSE minisymposium (with Andrew Strelzoff) (1999)

ICIAM International Meeting, Edinburgh, Wilkinson Prize minisymposium (1999)

DARPA/NSF Virtual Integrated Prototyping Workshop, San Francisco (1999)

Argonne National Laboratory, Reduced Mechanisms in Turbulent Combustion Workshop (1999)

Caltech Jet Propulsion Laboratory, Pasadena (1999)

SIAM Annual Meeting, Atlanta, (minisymposium on problem solving environments) (1999)

Workshop on Computational Sciences and Engineering, Ascona, Switzerland (1999)

University of California, Davis, Institute of Theoretical Dynamics (1999)

IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens Georgia (1999)

Conference on Nonlinear Dynamics and Scientific Computing, UCSB (1999)

University of Colorado, Depts. of Chemical Engineering and Applied Mathematics joint seminar, Boulder (1999)

RPI University, SCOREC Seminar, Troy New York (1999)

IGPP/NPACI Workshop on Accurate Simulation and Modeling of Physical Systems, San Diego (1998)

Argonne Automatic Differentiation Workshop, Argonne National Laboratory (1998)

ARPA Virtual Integrated Prototyping Workshop, Urbana (1998)

DOE Predictability Workshop, Albuquerque (1998)

SIAM National Meeting, Univ. of Toronto, minisymposium on Management of Uncertainty (1998)

ARPA Virtual Integrated Prototyping Workshop, Virginia (1998)

University of California, Santa Barbara, Workshop on Control and Computation (1998)

Stanford University, Scientific Computing and Computational Math Colloquium (1997)

Caltech, Workshop on Theoretical Foundations of Virtual Engineering and Complex Systems (1997)

University of California, Santa Barbara, Mathematics Colloquium (1997)

IMA Workshop on Multiple Time-Scale Dynamical Systems, Minneapolis, Minnesota (1997)

AICHE National Meeting (minisymposium lecture), Los Angeles, California (1997)

SCiCADE97, Scientific Computing and Differential Equations, Grado, Italy (1997)

SIAM National Meeting (minisymposium lecture), Stanford, California (1997)

IMA Workshop on Automatic Differentiation, Minneapolis, Minnesota (1997)

Canadian Applied Mathematics Society National Meeting (minisymposium lecture), Toronto, Canada (1997)

University of Pennsylvania, Department of Computer Science (1997)

Eighth SIAM Conference on Parallel Processing for Scientific Computing (minisymposium lecture), Minneapolis, Minnesota (1997)

AHPCRC Infrastructure Support Workshop, Vicksburg, Mississippi (1997)

ARO PI Meeting, Raleigh, North Carolina (1997)

University of California Santa Barbara (1997)

Workshop on Innovative Time Integrators, Amsterdam, The Netherlands (1996)

C3AD Colloquia Em Computacao Cientifica De Alto Desempenho, Laboratorio Nacional De Computacao Cientifica, Rio de Janeiro, Brazil (plenary lecture) (1996)

Universidade Federal do Rio de Janeiro, Brazil (1996)

Volterra Centennial, Arizona State University (plenary lecture) (1996)

SIAM Meeting on Optimization, Victoria B. C. (invited minisymposium lecture) (1996)

University of Wisconsin LaCrosse, Dept. of Mathematics (1996)

University of California, Santa Barbara (1996)

North Carolina State University, Dept. of Mathematics (1996)

University of Arizona, Dept. of Mathematics (2 lectures) (1996)

University of California, Irvine, Dept. of Mathematics (1996)
Princeton University, Applied Mathematics (1995)
University of California, San Diego, Dept. of Mathematics (1995)
University of Heidelberg, Germany (2 invited lectures) (1995)
Air Products and Chemicals Corp., Allentown, Pennsylvania (1995)
1995 Conference on Numerical Analysis, Dundee (1995) (plenary lecture)
ICIAM 95, Hamburg (1995) (2 invited minisymposium lectures)
IMA Workshop on Large-Scale Optimization, Minneapolis (1995) (plenary lecture)
Method of Lines for Partial Differential Equations Workshop, University of Kentucky, (1995) (invited lecture)
Cornell University, Dept. of Computer Science (1995)
North Carolina State University, Workshop on Krylov Methods (1995) (plenary lecture)
1995 International ADAMS User's Conference, Ann Arbor, Michigan (1995) (plenary lecture)
University of Tokyo, Japan (1994)
NEC Corp., Kawasaki, Japan (1994)
University of Electro-Communications, Tokyo, Japan (1994)
Research Institute for Mathematical Sciences, Kyoto University, Japan (1994)
Nagoya University, Japan (1994)
Toyota Central Research Laboratories, Nagoya, Japan (1994)
Nagoya University, Japan (1994)
University of Minnesota, Chemical Engineering and Materials Science (1994)
Sandia National Laboratories, Albuquerque, New Mexico (1994)
Humboldt Universitat zu Berlin (Mathematics Department) (1994)
Konrad-Zuse-Zentrum fur Informationstechnik Berlin (ZIB) (1994)
Oak Ridge National Laboratory (1994)
University of Iowa (Computer Aided Design Group) (1994)
University of Iowa (Computer Science Department) (1994)
Army Research Laboratory, Maryland (1993)
New York University, Courant Institute (1993)
Scalable Parallel Libraries Conference, Mississippi (invited lecture) (1993)
Argonne National Laboratory (1993)

ARO Workshop on Advanced Manufacturing, Detroit (1993)
University of Illinois, Computational Science and Engineering (1993)
Stanford University, Department of Computer Science (1993)
Oberwolfach Meeting on Differential-Algebraic Equations, Oberwolfach, Germany (invited lecture) (1993)
Working Conference on the Production of High Quality Parallel Software in Numerical and Scientific Computing, Vienna, Austria (invited lecture) (1993)
NATO ASI on Computer-Aided Analysis of Rigid and Flexible Mechanical Systems, Lisbon, Portugal (1993) (2 hours plenary lectures)
Mathematics of Computation, 50th Anniversary Meeting, Vancouver, Canada (plenary lecture) (1993)
Allerton Conference on Communication, Control and Computing, Allerton, Illinois (1993) (invited minisymposium)
University of Geneva, Department of Mathematics (1993)
Rice University (1993)
Scientific Computing and Differential Equations 93, University of Auckland, New Zealand (invited lecture) (1993)
DOE Applied Mathematical Sciences Workshop, Albuquerque (1993)
University of Minnesota, Department of Computer Science (1993)
University of Minnesota, AHPCRC (1993)
University of Minnesota, Computer Science Affiliates (1993)
SIAM National Meeting (plenary lecture) (1992)
Rensselaer Polytechnic Institute, Troy, New York (1992)
ARO Workshop on Modelling and Analysis for Mechanical Systems (1992)
Air Products, Inc., Allentown, Pennsylvania (1992)
Naval Research Laboratory (1992)
AT&T Bell Laboratories, Allentown, Pennsylvania (1992)
University of Minnesota (1992)
Ballistics Research Laboratory (1992)
Tulane University (1992)
Clemson University (Distinguished Lecturer Series) (1992)
Argonne National Laboratory (1991)
University of Illinois, Midwest NA Day (1991)
University of Minnesota Department of Computer Science (1991)

Los Alamos Conf. on Computational Issues in Nonlinear Science (invited lecture) (1991)

ICIAM 91 (minisymposium on multibody dynamics), Washington, D. C. (1991)

ICIAM 91 (minisymposium on BVP in DAE), Washington, D. C. (1991)

University of Minnesota (1991)

Army Conference, Minneapolis, Minnesota (1991)

IMA Summer Session on Semiconductors, Minneapolis, Minnesota (1991)

AIChE National Meeting (minisymposium), Chicago, Illinois (1990)

IEEE Conf. on Decision and Control (minisymposium), Honolulu, Hawaii (1990)

Exxon Research and Engineering Company, Florham Park, New Jersey (1990)

RIACS (1990)

Stanford University, Department of Computer Science (1990)

Stanford University, Department of Mechanical Engineering (1990)

North Carolina State University, Department of Mathematics (1990)

Midwest Numerical Analysis Day, University of Illinois (1990)

University of Minnesota, Department of Computer Science (1990)

U. S. Army Research Office (1990)

NATO Workshop on Real-Time Integration Methods for Mechanical System Simulation, Snowbird, Utah (invited lecture) (1989)

SIAM National Meeting (Minisymposium), San Diego, California (1989)

IMA Conference on Computational Ordinary Differential Equations, London, England (invited lecture) (1989)

Manchester Institute of Science and Technology, Manchester, England (1989)

Lehigh University, Pennsylvania (1989)

Air Products and Chemicals Corp., Allentown, Pennsylvania, (1989)

Stichting Mathematisch Centrum, Amsterdam (1988)

Rensselaer Polytechnic Institute, Troy, New York (1988)

San Diego State University, Department of Mathematics (1988)

University of California, Davis, Department of Mathematics(1988)

Eighth International Conference on Computing Methods in Applied Sciences and Engineering, Versailles, France (plenary lecture) (1987)

University of Iowa, Iowa City, Departments of Mathematics and Mechanical Engineering (1987)

DFVLR, Munich, West Germany (1987)

Siemens Corporation, Munich, West Germany (1987)

First International Conference on Industrial and Applied Mathematics, (minisymposium), Paris, France, (1987)

IMACS Sixth International Symposium on Computer Methods for Partial Differential Equations, Lehigh, Pennsylvania, (1987)

AMS-SIAM Summer Seminar on Computational Aspects of VLSI Design with Emphasis on Semiconductor Device Simulation (invited lecture), Minneapolis, Minnesota (1987)

Workshop on the Numerical Behavior of Unified Creep-Plasticity Models, Sandia National Laboratories, Livermore, California (1987)

Technical University of Denmark, Copenhagen, Denmark (1986)

Lund University, Lund, Sweden (1986)

University of Trondheim, Trondheim, Norway (1986)

Lawrence Livermore National Laboratory (1986)

1986 ODE Conference, Albuquerque, New Mexico (invited lecture) (1986)

University of Minnesota (1985)

SIAM National Meeting (minisymposium on Differential/Algebraic Systems), Pittsburgh, Pennsylvania (1985)

Rensselaer Polytechnic Institute (1985)

AT&T Bell Laboratories (Murray Hill) (1985)

University of Illinois (1985)

Uppsala University, Sweden (1985)

Lockheed Palo Alto Research Center (1985)

Orbital Dynamics and Applications to Accelerators Workshop, Berkeley, California (invited lecture) (1985)

Midwest Symposium on Circuits and Systems (minisymposium), Morgantown, West Virginia (1984)

American Society of Mechanical Engineers National Meeting (minisymposium), New Orleans, Louisiana (1984)

Sandia National Laboratories, Livermore (1984)

Conference on the Numerical Treatment of Ordinary Differential Equations, Humboldt University, East Berlin (plenary lecture) (1984)

Stichting Mathematische Centrum, Amsterdam (1984)

University of Heidelberg (1984)

Stanford University, Department of Computer Science (1983)
Summer Computer Simulation Conference (invited lecture), Vancouver B. C.,(1983)
National Bureau of Standards, Gaithersburg, Maryland (1983)
Conference on Matrix Pencils (invited lecture), Pitea, Sweden (1982)
Royal Institute of Technology, Stockholm, Sweden (1982)
Los Alamos National Laboratory (1982)
Stanford University, Department of Computer Science (1981)
Boeing Computer Services, Seattle, Washington (1981)
Conference on Numerical Solution of Differential Equations (panel discussion), Urbana, Illinois (1979)
AT&T Bell Laboratories (1978)
Sandia National Laboratories, Albuquerque (1978)
Sandia National Laboratories, Livermore (1978)
Lawrence Livermore National Laboratory (1978)
Stanford University, Department of Computer Science (1978)

Lectures, Seminars and Papers: Education and Outreach

- Lecture to numerical analysis class, Harvey Mudd College, 2011
- 2011 Nebraska Conference for Undergraduate Women in Mathematics, Plenary Lecturer and Panel member
- 2010 UCSB Department of Mathematics Hypatian seminar
- 2009 Caltech Lecture to computational science students on Numerical Libraries
- 2009 UCSB Lecture to graduate students on Writing a Research Paper
- 2008 LSMAMP (Louis Stokes Mississippi Alliance for Minority Participation) National Research Symposium, Jackson State University, Keynote speaker, 2008.
- UCSB Graduate Division Graduate Research Internship Program (GRIP) and Summer Doctoral Research Institute (SDRI) programs, lecture and discussion on Ethics in Research, 2008.
- Koorringal High School, Wagga Wagga, Australia, spoke to 10-12th grade mathematics students, 2008.
- SIAM Annual Meeting, Association for Women in Mathematics Minisymposium, 2008.
- Applied Mathematical Sciences Summer Institute, Loyola Marymount University, guest speaker, 2007.
- SIAM Education Committee report on Undergraduate Education in Computational Science and Engineering, coauthor, 2007.
- 2006 Grace Hopper Celebration of Women in Computing, panel on Feedback and Dynamics in Nature
- 2006 IGERT Project Meeting, panel discussion on IGERT and AGEP
- Cal Poly San Luis Obispo, College of Engineering, 2005
- UCSB Chancellor's Outreach Advisory Board (2005-present)
- UCSB AGEP Summer Graduate Research Internship Program, panel discussion on diversity in the faculty (2005)
- UCSB CSE IGERT Career Development Workshop - Organized Career Development Workshop and gave lectures on proposal preparation and professional ethics (2005)
- Panel discussion on CSE Education, SIAM Computational Science and Engineering Meeting, Orlando Florida (2005)
- Talk with UCSB Los Ingenieros group (2005)
- Talk with UCSB WISE group (2005)
- Briefing to PITAC Committee on Status of U.S. Computational Science and Engineering Graduate Education (2005)
- UCSB Parents' Weekend Panel Discussion (2004)

UCSB CSE IGERT Career Development Workshop - Organized Career Development Workshop and gave lectures on proposal preparation and professional ethics (2004)

IPAM/Institute for Women and Technology Leadership Workshop, UCLA, organizing committee, panelist, discussion leader (2004)

University of Maryland Baltimore County, Lecture to WISE students (2003)

Women of Applied Mathematics, Research and Leadership, University of Maryland, panelist on two panels (2003)

UCSB Science Diversity Workshop, panelist (2003)

UCSB Harvey Mudd Day (2002)

UCSB Materials Research Laboratory, Summer Students and Teachers Seminar (2002)

SIAM Annual Meeting, minisymposium lecture on The Emerging CSE discipline and graduate education (2001)

Eighteenth Annual Rose-Hulman Conference on Undergraduate Mathematics, Terre Haute, IN, plenary speaker (2001)

Olga Taussky Todd Celebration of Careers in Mathematics for Women, Berkeley CA, lecture and panel speaker (1999)

Math, with an Attitude, in *A Celebration of Women in Mathematics*, Princeton University Press 2005.

ICIAM International Meeting, minisymposium lecture on starting a Computational Science and Engineering graduate degree program (1999)

Workshop on Computational Sciences and Engineering, Ascona, Switzerland, lecture on CSE curriculum (1999)

UCSB Regional Receptions, Concord and San Jose CA (1999)

Santa Barbara Curriculum Forum (1998)

SIAM National Meeting, Univ. of Toronto (1998) minisymposium lecture on starting a Computational Science and Engineering graduate degree program

UCSB Women in Computing panel discussion (1998)

SIAM National Meeting, Stanford University (1997), panel discussion and KQED public radio forum on Mathematics in the 21st Century

AWM Minisymposium, SIAM National Meeting, Stanford University (1997), organized minisymposium on Presenting Your Work and Yourself, lecture on the writing of funding proposals

IMA Workshop on Women in Mathematical Sciences Connected to Industry, University of Minnesota (1996)

Carleton/St. Olaf Summer Program for Women, Minnesota (1995)

Army High Performance Research Center Summer Undergraduate Program, Min-

neapolis, (1995, 1994, 1993, 1992)

St. Olaf College, Minnesota (1993)

Cedar Crest College, MathConn, Pennsylvania (1989)

Publications

Core Module Biomarker Identification with Network Exploration for Breast Cancer Metastasis, BMC Bioinformatics 2012, 13:12 (R. Yang, B. Daigle and F. J. Doyle III)

State-dependent Doubly Weighted Stochastic Simulation Algorithm for Automatic Characterization of Stochastic Biochemical Rare Events, J. Chem Phys. 135(23), p. 234108, 2011 (with M. Roh, B. Daigle and D. Gillespie) - chosen as a Research Highlight by J. Chem. Phys.

Undergraduate Computational Science and Engineering Education, SIAM Review 53 (3), 2011, pp. 561-574 (SIAM Working Group on CSE Undergraduate Education, P. Turner and L. Petzold, Co-Chairs; A. Shifflet, I. Vakalis, K. Jordan, S. St. John).

StochKit2: Software for Discrete Stochastic Simulation of Biochemical Systems with Events, Bioinformatics, 2011 (with K. Sanft, S. Wu, M. Roh, J. Fu and R. Lim).

A New Perspective on the Linear Noise Approximation, to appear IET Systems Biology, 2011 (with E. Wallace, D. Gillespie and K. Sanft).

Michaelis-Menten Speeds up Tau-Leaping Under a Wide Range of Conditions, J. Chem. Phys. 134, p. 134112 (9 pages), 2011 (with S. Wu, J. Fu and Y. Cao).

Automated Estimation of Rare Event Probabilities in Biochemical Systems, J. Chem. Phys. 134 (4), p. 044110-, 2011 (with B. Daigle, M. Roh and D. Gillespie).

Confidence from Uncertainty - A Multi-Target Drug Screening Method from Robust Control Theory, BMC Systems Biology 4:161, 2010 (with C. Luni, J. Shoemaker, K. Sanft and F. Doyle).

State-Dependent Biasing Method for Importance Sampling in the wSSA, J. Chem. Phys. 133, p. 174106, 2010 (with M. Roh and D. Gillespie).

Legitimacy of the Stochastic Michaelis-Menten Approximation, IET Systems Biology 2011 (with K. Sanft and D. Gillespie).

Velocity Response Curves Support the Role of Continuous Entrainment in Circadian Clocks, Journal of Biological Rhythms 25(2), 2010, pp. 138-149 (with S. R. Taylor, A. B. Webb, and F. J. Doyle III).

The Diffusive Finite State Projection Algorithm for Efficient Simulation of the Stochastic Reaction-Diffusion Master Equation, J. Chem. Phys. 132(7), 2010, 074101 (12 pages) (with B. Drawert, M. J. Lawson, and M. Khammash).

Modeling of Detailed Insulin Receptor Kinetics Affects Sensitivity and Noise in the Downstream Signalling Pathway, Proc. DYCOPS 2010 Conf. (with C. Luni, K. Sanft, and F. J. Doyle III).

Wavelet Measurement Suggests Cause of Period Instability in Mammalian Circadian Neurons, J. Bio. Rhythms 26(4), pp. 353-362, 2011 (with K. Meeker, R. Harang, A. B. Webb, D. K. Welsh, F. J. Doyle III, G. Bonnet, and E. D. Herzog).

Simulation of Electrochemical Systems with Surface-Bulk Coupling Strategies, Proc.

- IMACS/MODSIM Conference, Cairns, Australia, 2009 (with M. Buoni).
- Refining the Weighted Stochastic Simulation Algorithm*, J. Chem. Phys. 130 p. 174103, 2009 (with D. Gillespie and M. Roh).
- An Algorithm for Simulation of Electrochemical Systems with Surface-Bulk Coupling Strategies*, J. Comp. Phys. 229, 2010, pp. 379-398 (with M. Buoni).
- The Subtle Business of Model Reduction for Stochastic Chemical Kinetics*, J. Chem. Phys. 130, 064103 (12 pages), 2009 (with D. T. Gillespie, Y. Cao and K. Sanft).
- The Multinomial Simulation Algorithm for Discrete Stochastic Simulation of Reaction-Diffusion Systems*, J. Chem. Phys. 130 (9), pp. 094104-094104-16, 2009 (with S. Lampoudi and D. Gillespie).
- Kinetic Modeling of Biological Systems*, in *Computational Systems Biology*, Vol. 541, Eds. J. McDermott et al., Humana Press, 2009 (with H. Resat and M. Pettigrew).
- Computational Modeling of the BvgAS Phosphorelay*, Technical Report, 2008 (with S. Lampoudi, R. Hulbert and P. Cotter).
- A Model of Macroscale Deformation and Microvibration in Skeletal Muscle Tissue*, M2AN 43, pp. 805-823, 2009 (with B. Simeon and R. Serban).
- Systems Analysis for Systems Biology*, in *Systems Biomedicine*, Ed. E. Liu and D. Lauffenburger, Elsevier, 2009 (with S. Hildebrandt, N. Bagheri, R. Gunawan, H. Mirsky, J. Shoemaker, S. Taylor and F. J. Doyle).
- Differential-Algebraic Equations*, Scholarpedia, www.scholarpedia.org/article/Differential-algebraic-equations, 2008 (with S. L. Campbell and V. Linh).
- Synchrony and Entrainment Properties of Robust Circadian Oscillators*, J. Royal Society Interface 5, Focus S17-S29, 2008 (with S. Taylor, N. Bagheri, K. Meeker and F. J. Doyle III).
- A Top-Down Approach To Mechanistic Biological Modeling: Application to Single-Chain Antibody Folding*, Biophysical Journal 95(8), pp. 3535-3558, 2008, (with S. P. Hildebrandt, D. Raden, A. S. Robinson and F. J. Doyle III).
- Parallel Simulation for a Fish Schooling Model on a General-Purpose Graphics Processing Unit*, Concurrency and Computation: Practice and Experience, 21(6), pp. 725-737, 2009 (with H. Li, A. Kolpas and J. Moehlis).
- Slow-Scale Tau Leaping Method*, Computer Methods in Applied Mechanics and Engineering 197, pp. 3472-3479, 2008 (with Y. Cao).
- Oscillator Model Reduction Preserving the Phase Response: Application to the Circadian Clock*, Biophysical Journal 95(4), pp. 3535-3558, 2008 (with S. Taylor and F. Doyle).
- Systems Analysis of the Insulin Signaling Pathway*, Proc. 17th IFAC World Congress, Seoul, Korea, July 2008 (with F. Doyle, E. Kwei, K. Sanft).
- Effect of Excluded Volume on 2D Discrete Stochastic Chemical Kinetics*, J. Comp. Phys. 228(10), pp. 3656-3668, 2009 (with S. Lampoudi and D. Gillespie).

Efficient Parallelization of Stochastic Simulation Algorithm for Chemically Reacting Systems on the Graphics Processing Unit, Int. J. of High Performance Computing Applications 24(2), pp. 107-116, 2009 (with H. Li).

A Hybrid Multiscale Kinetic Monte Carlo Method for Simulation of Copper Electrodeposition, J. Comp. Phys. 227, 2008, pp. 5184-5199 (with Z. Zheng, R. M. Stephens, R. D. Braatz and R. C. Alkire).

A Stabilized Explicit Lagrange Multiplier Based Domain Decomposition Method for Parabolic Problems, J. Comp. Phys. 227, May 2008 pp. 5272-5285 (with Z. Zheng and B. Simeon).

Algorithms and Software for Stochastic Simulation of Biochemical Reacting Systems, Biotechnology Progress 24(1), pp. 56-62, 2008 (with H. Li, Y. Cao and D. Gillespie).

Computational Modeling of Chaperone Interactions in the Endoplasmic Reticulum of Saccaromyces Cerevisai, M. Griesemer, C. Young, D. Raden, F. Doyle III, A. Robinson and L. Petzold, FOSBE 2007 Conference Proceedings.

Systems Analysis of Biological Networks in Systems Biology, in Systems Analysis of Biological Networks in Systems Biology, eds. E. T. Liu, G. P. Nolan, D. A. Luffenburger, Academic Press 2007 (with S. P. Hildebrandt, N. Bagheri, R. Gunawan, H. P. Mirsky, J. Shoemaker, S. R. Taylor and F. J. Doyle III).

Robust Timekeeping in Circadian Networks: From Genes to Cell, submitted, FOSBE 2007 Conference Proceedings (with N. Bagheri, S. R. Taylor, K. Meeker and F. J. Doyle III).

Detection of a miRNA Signal in an In Vivo Expression Set of mRNAs, Plos One, August 2007 (with T. Liu, T. Papagiannakopoulos, K. Puskar, J. Qi, F. Santiago, W. Clay, K. Lao, S. Nelson, H. Kornblum, F. Doyle, B. Shraiman and K. Kosik).

Sensitivity Measures for Oscillating Systems: Application to Mammalian Circadian Gene Network, IEEE Trans. Aut. Control 53, pp. 177-188, 2008 (with S. Taylor, R. Gunawan, L. Petzold and Francis J. Doyle III).

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