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CURRICULUM VITAE

Harvey Thomas Banks
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Born October 30, 1940
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Home Address 202 Birkhaven Dr.
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Education 1963 B.S. Applied Mathematics, North Carolina State University
1965 M.S. Applied Mathematics, Purdue University
1967 PhD Applied Mathematics, Purdue University

Faculty Research Interests

Optimization and control theory, including deterministic and statistical methods for identification and control of partial and functional differential equations, applications to problems in electromagnetics, elasticity, acoustics, smart materials and structures.

Mathematical models in biology, including physiologically based pharmacokinetic (PBPK) models; diffusion and transport phenomena in membranes, tissue, population dispersal and growth, size structured populations, infectious diseases.

Scientific computing, including parallel architectures, vector and array processors; architecture/software/approximation method interface in control and estimation techniques; uncertainty and probabilistic methods

Professional Appointments

1967-68	Research Associate, Division of Applied Mathematics, Brown University, Providence, RI
1968-72	Assistant Professor, Division of Applied Mathematics, Brown University, Providence, RI
1972 May-June	Visiting Scientist, IRIA (Institut de Recherche d'Informatique et d'Automatique) Rocquencourt, France
1972-76	Associate Professor, Division of Applied Mathematics, Brown University, Providence, RI
1975-76	Visiting Associate Professor, Department of Mathematics, University of Colorado
1976-91	Professor, Division of Applied Mathematics, Brown University, Providence, RI
1977-82	Professor Visiteur (Adjunct Professor), Universite de Technologie de Compiegne, Compiegne, France
1978-	July, Visiting Professor, Universitat Graz. Graz. Austria
7/79-6/80	Associate Director, Lefschetz Center for Dynamical Systems, Brown University
6/80-8/80	Director, Lefschetz Center for Dynamical Systems, Brown University
6/80-12/03	Scientific Consultant, Institute for Computer Applications in Science and Engineering (ICASE), NASA Langley Research Center, Hampton, VA
3/85-9/93	Associate Member, ICASE
7/81-8/81	Visiting Professor, University of Utah, Salt Lake City, Utah
9/81-12/81	Director, Lefschetz Center for Dynamical Systems, Brown University, Providence, RI

9/82-6/84	Visiting Professor, Southern Methodist University, Dallas, TX
9/82-3/84	Scientific Consultant, Mobile Oil Co., Dallas, TX
1/87-8/89	Director, Center for Control Sciences, Brown University
6/88	Professeur, Universite de Paris, IX (Dauphine)
9/89-8/92	Professor of Mathematics and Founding Director Center for Applied Mathematical Sciences University of Southern California
1/92-	University Professor and Drexel Professor of Mathematics(thru 11/2014) Director, Center for Research in Scientific Computation N.C. State University
3/94, 5/94	Professeur Visiteur, Universite de Pierre et Marie Curie, Paris VI, and College de France
5/96	Professeur Visiteur, Universite de Frenche Compte, Bescanson, France
3/98	Professeur Invité, Centre Émile Borel, Institut Henri Poincaré, Paris, France
5/00-	Alumni Distinguished Graduate Professor, N.C. State University
3/01, 4/01	Professeur Visiteur, Universite de Pierre et Marie Curie, Paris VI, Paris, France
6/00-6/05	Member of Founding Directorate, Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle Park, NC
6/02-6/05	Associate Director for Education and Outreach, Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle Park, NC
2/04-3/04	Professeur Invité, Universite de Pierre et Marie Curie, Paris VI, Paris, France

1/07–	Distinguished University Professor, N.C. State University
10/07– 1/14	Co-Director, Center for Quantitative Sciences in Biomedicine, N.C. State University
4/1/14–5/1/14	Professeur Visiteur, Universite de Pierre et Marie Curie, Paris VI, Paris, France
11/14–	LeRoy B. Martin, Jr. Distinguished Professor, N.C. State University

Books written and edited by H.T. Banks

1. H.T. Banks, *Modeling and Control in the Biomedical Sciences*, Lecture Notes in Biomathematics, **6** Heidelberg, Springer, 1975.

2. H.T. Banks and K. Kunisch, *Estimation Techniques for Distributed Parameter Systems*, Boston:Birkhaüser, 1989, 320pp.

3. H.T. Banks, ed. *Control and Estimation in Distributed Parameter Systems*, (Frontiers in Applied Mathematics **11**), Philadelphia, SIAM, 1992.

4. H.T. Banks, R.H. Fabiano and K. Ito, eds. *Identification and Control in Systems Governed by Partial Differential Equations*, Philadelphia, SIAM, 1993.

5. H.T. Banks, R.C. Smith and Y. Wang, *Smart Material Structures: Modeling, Estimation and Control*, Masson Series on Research in Applied Math, Masson/J. Wiley, 1996.

6. H.T. Banks, M.W. Buksas and T. Lin, *Electromagnetic Material Interrogation Using Conductive Interfaces and Acoustic Wavefronts*, (Frontiers in Applied Mathematics **21**), Philadelphia, SIAM, 2000.

7. H.T. Banks and C. Castillo-Chavez, eds. *Bioterrorism, Mathematical Modeling Applications in Homeland Security.* (Frontiers in Applied Mathematics **28**), Philadelphia, SIAM, 2003.

8. H.T. Banks and H.T. Tran, *Mathematical and Experimental Modeling of Physical and Biological Processes*, CRC Press, Boca Raton, FL, July, 2008, 308pp. Published, January, 2009.

9. H.T. Banks,*A Functional Analysis Framework for Modeling, Estimation and Control in Science and Engineering*, Taylor and Frances Publishing, Accepted, January 15, 2012. (258 pages), June 2012.

10. H.T. Banks, Shuhua Hu, and W. Clayton Thompson, *Modeling and Inverse Problems in the Presence of Uncertainty*, Taylor and Frances Publishing, Accepted, October 13, 2013. (411 pages), April, 2014.

Publications

1. Necessary conditions for control problems with variable time lags, SIAM J. Control, 6 (1968), 9-47.

2. Variational problems involving functional differential equations, SIAM J. Control, 7 (1969), 1-17.

3. Representations for solutions of linear functional differential equations, J. Differential Equations, 5 (1969), 399-409.

4. A maximum principle for optimal control problems with functional differential systems, Bull. Amer. Math. Soc., 75 (1969), 158-161.

5. Invariance in linear systems (with J.K. Aggarwal, Univ. of Texas, and N.H. McClamroch, Univ. of Michigan), Biannual Electrical Research, 8 (1968), Electronics Research Center, Univ. of Texas, Austin, Texas. Also appeared in J. Math. Anal. Appl., 29 (1970), 498-506.

6. Optimal control of linear time delay systems (with J.K. Aggarwal and D.H. Eller), IEEE Trans. Automatic Control, AC-14 (1969), 678-687.

7. A differential calculus for multifunctions (with M.Q. Jacobs), J. Math. Anal. Appl, 29 (1970), 246-272.

8. The optimization of trajectories of linear functional differential equations (with M.Q. Jacobs), SIAM J. Control, 8 (1970), 461-488.

9. Optimal control and linear functional differential equations (with M.Q. Jacobs), in *Proc. of the Conf. on Differential Equations and Dynamical Systems*, Univ. of Maryland, August 1969: Springer-Verlag Lecture Notes in Mathematics, 144 (1970), 5-15.

10. The synthesis of time-optimal controls for linear problems with retarded controls (with M.Q. Jacobs and M.R. Latina), J. Optimization Theory Appl., 8(1971), 319-366.

11. Control of functional differential equations of retarded and neutral type to target sets in function space (with G.A. Kent), SIAM J. Control, 10 (1972), 567-593.

12. Convergence theorems for parameter estimation by quasilinearization (with G.M. Groome, Jr.), J. Math. Anal. Appl., 42 (1973), 91-109.

13. An attainable sets approach to optimal control of functional differential equations with function space terminal conditions (with M.Q. Jacobs), J. Differential Equations, 13 (1973), 127-149.

14. Control of functional differential equations with function space boundary conditions, in *Delay and Functional Differential Equations and their Applications*, K. Skittle, Ed., Academic Press, New York, (1972), 1-16.

15. IRIA lectures in *Seminaires IRIA: Analyse et Controle de Systemes*, Rocquencourt, France, 1972. a. Glucose homeostasis I. Physiological background and a survey of some previous mathematical models, 15-20. b. Glucose homeostasis II. A new mathematical model, 21-31. c. On identification problems arising in biomedical modeling, 33-37. d. A survey of results on control of systems with delays, 39-44.

16. Mathematical modeling of the glucose homeostatis system in humans (with C.A. Carter), LCDS Lecture Notes 72-1, Brown University, July 1972.

17. Projection series for retarded functional differential equations with applications to optimal control problems (with A. Manitius), J. Differential Equations, 18 (1975), 296-332.

18. Function space controllability for linear functional differential equations (with M.Q. Jacobs and C. Langenhop), in *Differential Games and Control Theory*, R. Sternberg Ed., Marcel Dekker, New York (1974), 81-98.

19. Characterization of controlled states in $W_2^{(1)}$ of linear hereditary systems (with M.Q. Jacobs and C. Langenhop), SIAM J. Control, 13 (1975), 611-649.

20. Modeling and control of dynamical systems in the life sciences, LCDS Lecture Notes 73-1, Brown University, November 1973 (also appeared in *Proc. 14th Biennial Seminar of the Canadian Math. Congress*, London, Ontario, August, 1973).

21. Application of the Fredholm alternative to controllability of functional differential equations (with M.Q. Jacobs and C. Langenhop), *Proc. 14th Biennial Seminar of the Canadian Math. Congress*, (1973).

22. Application of abstract variational theory to hereditary systems - a survey (with A. Manitius), Univ. of Minnesota Report TR-73-11, October, 1973; IEEE Trans. Automatic Control, AC-19 (1974), 524-533.

23. A mathematical model for enzyme cascades (with R. Miech), *Proc. 1973 Intl. Conf. on Cybernetics and Society*, Boston, MA, (1973), 236-239.

24. Projection methods for retarded functional differential equations (with A. Manitius) in *Mathematical Control Theory*, (S. Dolecki C. Olech, and J. Jabczyk, Eds.), Banach Center Publications, 1, Warsaw (1976), 9-15.

25. Kinetics of a cyclic-AMP initiated recycling cascade for the activation of phosphorylase (with R. Miech), to appear.

26. Mathematical models for enzyme cascades (with R. Miech), Seminaires IRIA: Analyse et controle de Systemes, Rocquencourt, France (1974), 5-13.

27. Nonlinear systems in models for enzyme cascades (with R. Miech and D. Zinberg) in *Variable Structure Systems with Application to Economics and Biology*, (A. Ruberti and R. Mohler, Eds), Lecture Notes in Econ. and Math. Systems, 111 Springer (1975), 265-277.

28. Projection methods for hereditary systems (with J. Burns), in *International Symposium on Dynamical Systems* (L. Cesari, J. Hale, J. LaSalle, Eds.), Academic Press (1975), 287-190.

29. An abstract framework for approximate solutions to optimal control problems governed by hereditary systems (with J. Burns), *International Conference on Differential Equations* (H. Antosiewicz, Ed.), Academic Press (1975), 10-25.

30. Eigenmanifold decomposition for retarded functional differential equations in Hilbert space (with J. Burns), Tech. Rep. No. TR-1, Math. Dept. VPISU, Blacksburg, November 1974.

31. A theoretical and computational method for determining optimal treatment schedules in fractionated radiation therapy (with K. Almquist), Math. Biosci., 29 (1976), 159-179.

32. Mathematical Modeling in the Biological Sciences (with P.J. Palatt), LCDS Lecture Notes 75-1, July 1975.

33. Modeling and Control in the Biomedical Sciences, Lecture Notes in Biomathematics, 6 Springer, Heidelberg, 1975.

34. Numerical solutions of hereditary control problems via an approximation technique (with J. Burns, E. Cliff, and P. Thrift), LCDS Technical Report #75-6, October, 1975. Also appeared in *Proc. Intl. Symp. Simulation Software and Numerical Methods for Differential Equations*, March, 1977.

35. Hereditary control problems: numerical methods based on averaging approximations (with J. Burns), SIAM J. Control & Opt., 16 (1978), 169-208.

36. Approximation methods for optimal control problems with delay-differential systems, Seminaires IRIA: Analyse et Controle de Systemes, (1976), 5-19.

37. Delay systems in biological models: approximation techniques, *Nonlinear Systems and Applications* (V. Lakshmikantham, ed.), Academic Press (1977), 21-38.

38. Approximation of nonlinear functional differential equation control systems, J. Opt. Theory Appl., 29 (1979), 383-408.

39. Approximation techniques for control systems with delays (with J. Burns), *Proc. Intl. Conf. on Math, Programming*, Zakopane, Poland, September, 1977.

40. Global asymptotic stability of certain models for protein synthesis and repression (with J. Mahaffy), Quart. Applied Math., 36 (1978), 209-221.

41. Stability of cyclic gene models for systems involving repression (with J. Mahaffy), J. Theoretical Biology, 74 (1978), 323-334.

42. Optimal control of diffusion-reaction systems (with Duban and Kernevez), *Applied Nonlinear Analysis* (V. Lakshmikanthan, Ed.), Academic Press (1979), 47-59.

43. Approximation of delay systems with applications to control and identification, *Proc. Intl. Conf. on FDE and Approximation of Fixed Points*, Springer-Verlag Lecture Notes in Math., No. 730 (1979), 65-76.

44. Spline Approximations for functional differential equations (with F. Kappel), J. Differential Equations, 34 (1979), 496-522.

45. Spline based approximation methods for control and identification of hereditary systems (with J. Burns and E. Cliff), *Int. Symp. on Systems Opt. and Analysis* (A. Bensoussan and J.L. Lions, Eds.), Lecture Notes in Control and Info. Sciences, 14 Springer, Heidelberg (1979), 314-320.

46. Mathematical models for protein synthesis (with J. Mahaffy), LCDS Technical Report #79-4, August, 1979.

47. A comparison of numerical methods for identification and optimization problems involving control systems with delays (with J. Burns and E. Cliff), LCDS Technical Report #79-7, November, 1979.

48. Parameter estimation and identification for systems with delays (with J. Burns and E. Cliff), SIAM J. Control & Opt., 19 (1981), 791-828.

49. A comparison of mathematical models for a recycling cascade in glycogenolysis (with R.P. Miech and S.L. Olson), J. Math. Modeling, 1 (1980), 13-26.

50. Computational difficulties in the identification and optimization of control systems (T. Vincent, Ed.), Lecture Notes in Biomath, 40, Springer-Verlag (1981), 79-94.

51. Nonlinear differential equation models in enzyme regulated pathways, *Proc. Conf. on Math. Biol.* (T. Burton, Ed.), Pergamon Press, to appear.

52. Identification of nonlinear delay systems using spline methods, *Proc. Intl. Conf. on Nonlinear Phenomena in Math. Sciences* (V. Lakshmikantham, Ed.), Academic Press (1982), 47-55.

53. Parameter estimation techniques for nonlinear distributed parameter systems (with K. Kunisch), *Nonlinear Phenomena in Math, Sciences* (V. Lakshmikantham, Ed.), Academic Press (1982), 57-67.

54. Parameter identification techniques for physiological control systems, in *Lectures in Applied Math.*, 19, American Mathematical Society, Providence, RI (1981), 361-383.

55. Approximation techniques for parameter estimation in hereditary control systems (with I.G. Rosen), *Proc. IEEE - CDC*, (1980), 741-743.

56. An approximation theory for nonlinear partial differential equations with applications to identification and control (with K. Kunisch), LCDS Technical Report #81-7, April 1981; SIAM J. Control & Opt., 20 (1982), 815-849.

57. A survey of some problems and recent results for parameter estimation and optimal control in delay and distributed parameter systems, LCDS Technical Report #81-19, July 1981; *Volterra and Functional Differential Equations*, (K. Hannsgen, et al., Eds.), Lecture Notes in Pure and Applied Mathematics, 81 Dekker (1982), 3-24.

58. Parameter estimation of nonlinear nonautonomous distributed systems (with P.L. Daniel), *Proc. 20th IEEE Conf. Dec. and Control*, San Diego, CA, December 1981, 228-232.

59. Spline approximations for linear nonautonomous delay systems (with I.G. Rosen), ICASE Rep. No. 81-33, NASA Langley Res. Center, Oct., 1981; J. Math. Anal. Appl, 96 (1983), 226-268.

60. Parameter estimation for distributed systems arising in elasticity (with J.M. Crowley), LCDS Report 81-24, Nov. 1981. *Proc. Symposium on Engineering Sciences and Mechanics* (National Cheng Kung University), Tainan, Taiwan, December, 1981, 158-177.

61. Cubic spline approximation techniques for parameter estimation in distributed systems (with J.M. Crowley and K. Kunisch), LCDS Report #81-25, Nov. 1981; IEEE Trans. Auto. Control, AC-28 (1983), 773-786.

62. Estimation of delays with other parameters in nonlinear functional differential equations (with P.L. Daniel), LCDS Report #82-2, Dec. 1981; SIAM J. Control & Opt., 21 (1983), 895-915.

63. Distributed system optimal control and parameter estimation: computational techniques using spline approximations, LCDS Report #82-6, Apr. 1982; in *Proc. 3rd IFAC Symposium on Control of Distributed Parameter Systems*, Toulouse, France, June 29-July 2, 1982.

64. Parameter estimation in Timoshenko beam models (with J.M. Crowley), LCDS Report #82-14, June 1982; J. Astronautical Sciences, 31 (1983), 381-397.

65. Parameter estimation techniques for transport equations with application to population dispersal and tissue bulk flow models (with P. Kareiva), LCDS Report #82-13, July 1982; J. Math. Biol., 17 (1983), 253-273.

66. Algorithms for estimation in distributed models with applications to large space structures, *Proc. Workshop on Applications of Distributed System Theory to the Control of Large Space Structures*, JPL - California Institute of Technology, July, 1982, Pasadena, CA.

67. A spline based technique for computing Riccati operators and feedback controls in regulator problems for delay equations (with I.G. Rosen and K. Ito), ICASE Report #82-31, NASA Langley Research Center, 1982; SIAM J. Scientific and Statistical Computing, 5 (1984), 830-855.

68. Parameter estimation for static models of the Maypole Hoop/Column Antenna surface (with P.L. Daniel and E.S. Armstrong), *Proc. IEEE Intl. Large Scale Systems Symposium*, October, 1982, Virginia Beach, VA; ICASE Report #82-26.

69. Estimation of variable coefficients in parabolic distributed systems (with P.L. Daniel), LCDS Technical Report; #82-22, September 1982; IEEE Trans. Auto. Control, 30 (1985), 386-398.

70. Inverse problems for hyperbolic systems with unknown boundary conditions, (with K.A. Murphy), LCDS Technical Report #82-30, November 1982; *Proc. Conf. on Control Theory for Distributed Systems*; Springer Lecture Notes on Info. Sci., 54, (1983), 35-44.

71. Parameter identification in continuum models (with J.M. Crowley), LCDS Technical Report #83-1, March 1983; J. Astronautical Sciences, 33 (1985), 85-94.

72. Modeling of flexible surfaces: a preliminary study (with G. Majda), LCDS Technical Report #83-18, May 1983; Int. J. Math. Modeling, 5 (1984), 103-115.

73. The linear regulator problem for parabolic systems (with K. Kunisch), LCDS Technical Report #83-18, May 1983; SIAM J. Control & Opt., 22 (1984), 684-698.

74. Computational methods for estimation of parameters in hyperbolic systems (with K. Ito and K.A. Murphy), *Proc. Conf. Inverse Scattering: Theory and Applications*, University of Tulsa, May, 1983, SIAM, Philadelphia, PA, 181-193.

75. Estimation of temporally and spatially varying coefficients in models for insect dispersal (with P.K. Daniel Lamm and P.M. Kareiva), LCDS Technical Report #83-14, June, 1983.

76. Spline-based estimation techniques for parameters in elliptic distributed systems (with P.L. Daniel and E.S. Armstrong), LCDS Technical Report #83-22, June, 1983. To appear, *Proc. for VPISU/AIAA Symposium on Dynamical Systems and Control of Large Structures*, Blacksburg, VA, June, 1983.

77. A spline-based parameter and state estimation technique for static models of elastic surfaces (with P.L. Daniel and E.S. Armstrong), ICASE Report #83-25, June, 1983; condensed version in *Proc. NASA/ACC Workshop on Identification and Control of Flexible Space Structures*, June, 1984, San Diego, CA, JPL, 3 (1985), 263-282.

78. Estimation techniques for transport equations (with P.L. Daniel and P.M. Kareiva), LCDS Technical Report #83-23, July, 1983; *Proc. Conf. on Mathematics in Biology and Medicine*, Lecture Notes in Biomathematics, Springer-Verlag (1985), 428-438.

79. Approximation of feedback controls for parabolic systems (with K. Kunisch), *Proc. 1983 Conf. on Dec. and Control*, December, 1983, San Antonio, TX, 247-251.

80. Estimation of coefficients and boundary parameters in hyperbolic systems (with K.A. Murphy), LCDS Technical Report #84-5, February 1984; SIAM J. Control & Opt., 24 (1986), 926-950.

81. Fully discrete approximation methods for the estimation of parabolic systems and boundary parameters (with I.G. Rosen), LCDS Technical Report #84-19, May 1984; Acta Applicandae Mathematicae, 7 (1986), 1-34.

82. Approximation techniques for parameter estimation and feedback control for distributed models of large flexible structures (with I.G. Rosen), ICASE Report #84-26, June 1984; *Proc. NASA/ACC Workshop on Identification and Control of Flexible Space Structures*, June, 1984, San Diego, JPL, 2 (1985), 145-156.

83. Estimation of material parameters in elastic systems (with J.M. Crowley), LCDS Technical Report #84-20, June 1984.

84. A Galerkin method for the estimation of parameters in hybrid systems governing the vibration of flexible beams with tip bodies (with I.G. Rosen), CSDL Report R-1724, June 1984, Charles Stark Draper Laboratories, Cambridge, MA.

85. Estimation of parameters in nonlinear distributed systems (with K. Murphy), *Proc. 23rd IEEE Conf. on Dec. and Control*, December, 1984, Las Vegas, NV, 257-261.

86. Modeling insect dispersal and estimating parameters when mark-release techniques may cause initial disturbances (with P.M. Kareiva and P.K. Lamm), J. Math. Biol., 22 (1985), 259-277.

87. On a variational approach to some parameter estimation problems, LCDS Technical Report #85-14, May 1985; in *Distributed Parameter Systems* (F. Kappel, et.al.) Springer Lecture Notes in Control and Info. Sci., 75 (1985), 1-23.

88. Numerical schemes for the estimation of functional parameters in distributed models for mixing mechanisms in lake and sea sediment cores (with I.G. Rosen), LCDS Technical Report #85-27, October, 1985; Inverse Problems 3 (1987), 1-23.

89. Approximation methods for the solution of inverse problems in lake and sea sediment core analysis (with I.G. Rosen), *Proc. 24th IEEE Conf. on Dec. and Control*, December, 1985, Ft. Lauderdale, FL.

90. Modeling Holocene changes of the location and abundance of Beech populations in eastern North America (with F. Dexter and T. Webb III), LCDS Technical Report #86-36, Brown University, Sept. 1986; Review of Palaeobotany and Palynology 50 (1987), 273-292.

91. Quantitative modeling of growth and dispersal in population models (with K.A. Murphy), LCDS Report #86-4, January 1986; *Proc. Intl. Symposium on Mathematical Biology*, November, 1985, Kyoto, Japan; Springer LN in Biomath 71 (1987), 98-109.

92. A comparison of stability and convergence properties of techniques for inverse problems (with D. Iles), LCDS Report #86-3, January 1986.

93. Estimation of stiffness and damping in cantilevered Euler-Bernoulli beams with tip bodies (with I.G. Rosen, and C. Wang), *Proc. IFAC Symposium on Control of D.P.S.*, Los Angeles (1986).

94. Methods for the identification of material parameters in distributed models for flexible structures (with J.M. Crowley and I.G. Rosen) ICASE Report #84-66, NASA Langley Res. Ctr., Hampton VA 1986; Mat. Aplicada e Computational, 5 (1986), 139-168.

95. Computational methods for the identification of spatially varying stiffness and damping in beams (with I.G. Rosen), LCDS Report. 86-39, Brown University, August, 1986; Control: Theory and Advanced Technology, 3(1987), 1-32.

96. On compactness of admissible parameter sets: convergence and stability in inverse problems for distributed parameter systems (with D.W. Iles), ICASE Report #86-38, NASA Langley Res. Ctr., Hampton VA, 1986; *Proc. Conf. on Control*

Systems Governed by PDE's, February, 1986, Gainesville, FL, Springer Lecture Notes in Control & Inf. Science, 97 (1987), 130-142.

97. Parameter estimation techniques for interaction and redistribution models of species interactions: a predator-prey example, (with P.M. Kareiva and K.A. Murphy), LCDS Technical Report #86-29, May 1986; Oceologia, 74 (1987), 356-362.

98. The identification of a distributed parameter model for a flexible structure, (with S. Gates, G. Rosen & Y. Wang), ICASE Report 86-71, NASA Langley Res. Center, Hampton, VA, Sept. 1986; SIAM Journal on Control & Opt., 26 (1988), 743-762.

99. Analyzing field studies of insect dispersal using two-dimensional transport equations, (with P. Kareiva & L. Zia), LCDS/CCS Rep. 86-48, Nov, 1986; Environmental Entomology, 17 (1988), 815-820.

100. A numerical algorithm for optimal feedback gains in high dimensional LQR problems, (with K.Ito), ICASE Rep. 86-76, October, 1986; SIAM Journal on Control & Opt., 29 (1991), 499-515.

101. Spline-based distributed system identification with application to large space antennas, (with P.K. Lamm, & E.S. Armstrong), Journal of Guidance, Control, and Dynamics, 9 (1986), 304-311.

102. Inverse problems in the modeling of vibrations of flexible beams (with R. Powers and I.G. Rosen), in *Distributed Parameter Systems* (F. Kappel, et.al.), Springer Lecture Notes in Control and Info. Science, 102 (1987), 1-22.

103. A theoretical framework for convergence and continuous dependence of estimates in inverse problems for distributed parameter systems (with K. Ito), LCDS/CCS Rep. 87-20, March, 1987, Brown Univ.; Applied Math. Lett. Vol. 0, No. 1, June (1987), 31-35.

104. Modeling and estimation in size structured population models (with L.W. Botsford, F. Kappel and C. Wang), LCDS/CCS Rep. 87-13, March, 1987, Brown Univ.; *Proc. 2nd Course on Math. Ecology* (Trieste, December, 1986), World Scientific Press, Singapore (1988), 521-541.

105. Estimation of nonlinearities in parabolic models for growth, predation and dispersal of populations (with K.A. Murphy), LCDS/CCS Rep. 87-36, August, 1987, Brown Univ.; J. Math. Anal. Appl., 141 (1989), 580-602.

106. Computational techniques for inverse problems in size-structured stochastic population models, *Proc. IFIP Conf. on Optimal Control of Systems Governed by PDE* (Santiago de Compostela, July, 1987), Springer LN in Control and Info. Sciences, 114, 3-10.

107. Computational techniques for estimation and control of distributed parameter systems, *Proc. IMACS/IFAC Intl. Symp. on Modeling and Simulation of DPS*, (Y. Sunahara, et. al., eds.), Hiroshima,Japan, October, 1987, 19-22.

108. Filtering problems for the stochastic vibration of flexible beams with tip bodies (with F. Kojima), *Proc. IMACS/IFAC Intl. Symp. on Modeling and Simulation of DPS*, (Y. Sunahara, et. al., eds.), Hiroshima, Japan, October, 1987, 515-522.

109. Parameter identification techniques for the estimation of damping in flexible structure experiments (with Y. Wang, D.J. Inman and H. Cudney), *Proc. 26th IEEE Conf. on Dec. and Control*, December, 1987, Los Angeles, 1392-1395.

110. Approximation techniques for domain identification in two dimensional parabolic systems under boundary observations (with F. Kojima), *Proc. 26th IEEE Conf. on Dec. and Control*, December, 1987, Los Angeles, 1411-1416.

111. A unified framework for approximation and inverse problems for distributed parameter systems (with K. Ito), Control-Theory and Adv. Tech., 4 (1988), 73-90.

112. Boundary shape identification problems in two dimensional domains related to thermal testing of materials (with F. Kojima), LCDS/CCS Rep. 88-6, April, 1988; Quart. Applied Math., Vol. 47 (1989), 273-293.

113. An approximation theory for the identification of nonlinear distributed parameter systems (with S. Reich and I.G. Rosen), LCDS/CCS Rep. 88-8, April, 1988; SIAM Journal on Control & Opt., 28 (1990), 552-569.

114. Estimation of Boltzmann damping coefficients in beam models (with R. Fabiano and Y. Wang), LCDS/CCS Rep. 88-13, July, 1988; *COMCON Conf. on Stabilization of Flexible Structures*, (Montpellier, December, 1987), Optimization Software, Inc., New York, 1988, 13-35.

115. Galerkin approximation for inverse problems for nonautonomous nonlinear distributed systems (with S. Reich and I.G. Rosen), LCDS/CCS Rep. 88-15, July, 1988; Appl. Math. Opt., **24** (1991), 233-256.

116. Inverse problems for distributed systems: statistical tests and ANOVA (with B. Fitzpatrick), LCDS/CCS Rep. 88-16, July, 1988; *Proc. International Symposium on Math. Approaches to Envir. and Ecol. Problems*, Springer Lecture Note in Biomath., 81 (1989), 262-273.

117. Transformation semigroups and L^1 approximation for size structured population models (with F. Kappel), LCDS/CCS Rep. 88-20, July, 1988; *Semigroup Forum* 38 (1989), 141-155.

118. Parameter estimation in nonlinear distributed systems - approximation theory and convergence results (with S. Reich and I.G. Rosen), Applied Math. Letters 1, (1988), 211-216.

119. Boundary identification for 2-D parabolic systems arising in thermal testing materials (with F. Kojima), *Proc. 27th IEEE Conf. on Dec. and Control*, Austin, TX, December, 1988, 1678-1683.

120. Spatial versus time hysteresis in damping mechanisms (with R. Fabiano, Y. Wang, D. Inman and H. Cudney), *Proc. 27th IEEE Conf. on Dec. and Control*, Austin, TX, December, 1988, 1674-1677.

121. Linear quadratic tracking problems in infinite dimensional Hilbert spaces and a finite dimensional approximation framework (with S.L. Keeling and C. Wang), LCDS/CCS Rep. 88-28, October, 1988.

122. Optimal control techniques for active noise suppression (with S.L. Keeling and R.J. Silcox), LCDS/CCS Rep. 88-26, September, 1988; *Proc. 27th IEEE Conf. on Dec. and Control*, Austin, TX, December, 1988, 2006-2011.

123. Numerical studies of identification in nonlinear distributed parameter systems (with C.K. Lo, S. Reich and I.G. Rosen), LCDS/CCS Rep. 88-31, December, 1988; *Proc. 4th Intl. Conf. on Control of Distributed Systems*, Vorau, Austria, July, 1988, Birkhäuser, 1989, 335-399.

124. Optimal feedback control of infinite dimensional parabolic evolution systems: Approximation techniques (with C. Wang), ICASE Rep. #89-4 (Jan., 1989), NASA Langley Res. Ctr., Hampton, VA; *SIAM J. Control & Opt.*, **27** (1989), 1182-1219.

125. Experimental determination of damping mechanisms in a composite beam (with D.J. Inman), *"Damping '89" Conf.* (W. Palm Beach, FL, February, 1989), and *Proc. 5th IFAC Symposium on Control of DPS*, Perpignan, France, June, 1989, 353-357.

126. Inverse problem techniques for beams with tip body and time hysteresis damping (with R.H. Fabiano and Y. Wang), ICASE Rep. #89-22 (April, 1989), NASA Langley Research Center, Hampton, VA; *Mat. Aplic. e Comput*, 8 #2 (1989), 101-118.

127. Linear quadratic tracking problems in Hilbert space: Application to optimal active noise suppression, (with S. Keeling, R. Silcox, C. Wang), *Proc. 5th IFAC Symposium on Control of DPS*, Perpignan, France, June, 1989, 17-22.

128. Statistical methods for parameter identification and model selection in distributed systems (with B.G. Fitzpatrick), *Proc. 5th IFAC Symposium on Control of DPS*, Perpignan, France, June, 1989, 191-193.

129. Estimation of parameters in age/size structure population models (with L. Botsford, F. Kappel, C. Wang), *Proc. 5th IFAC Symposium on Control of DPS*, Perpignan, France, June, 1989, 359-364.

130. *Estimation Techniques for Distributed Parameter Systems* (with K. Kunisch), Birkhaüser Boston, 1989, 320pp.

131. Estimation of nonlinear damping in second order distributed parameter systems (with S. Reich and I.G. Rosen), ICASE Rep. 89-16, August, 1989, NASA Langley Research Center; Control: Theory and Advanced Tech., 6 (1990), 395-415.

132. On damping mechanisms in beams (with D.J. Inman), ICASE Rep. #89-64 August, 1989; *ASME J. Applied Mechanics*, **58**, #3 (1991), 716–723.

133. Statistical methods for model comparison in parameter estimation problems for distributed systems (with B.G. Fitzpatrick), CAMS Tech. Rep. 89-4, September, 1989, University of Southern California; *J. Math. Biol.*, **28** (1990), 501-527.

134. Estimation of growth rate distributions in size-structured population models (with B.G. Fitzpatrick), CAMS Tech. Rep. 90-2, January, 1990, University of Southern California; *Quart. Appl. Math.*, **49** (1991), 215-235.

135. Estimation of growth and survival in size-structured cohort data: An application to larval striped bass (Morone saxatilis), (with L.W. Botsford, F. Kappel and C. Wang), CAMS Tech. Rep. 89-10, University of Southern California; *J. Math. Biol.*, **30** (1991), 125–150.

136. Boundary estimation problems arising in thermal tomography (F. Kojima and W.P. Winfree), CAMS Tech. Rep. 89-6, University of Southern California; *Inverse Problems*, **6** (1990), 897-921.

137. Bending rate damping in elastic systems (with R. Fabiano and Y. Wang), *Proc. 28th IEEE Conf. Dec. and Control*, Tampa, FL, December, 1989, 604-607.

138. Tau approximation techniques for identification of coefficients in parabolic PDE's (with J.G. Wade), *Proc. 28th IEEE Conf. Dec. and Control*, Tampa, FL, December, 1989, 596-598.

139. Analytic semigroups: applications to inverse problems for flexible structures (with D.A. Rebnord), CAMS Tech. Rep. 90-3, January, 1990, University of Southern California; in *Differential Equations with Applications*, (*Intl. Conf. Proc.*, Retzhof, Austria), Marcel Dekkar, 1991, pp. 21–35.

140. Estimation of material parameters for grid structures (with D.A. Rebnord), CAMS Tech. Rep. 90-4, March, 1990, University of Southern California; *J. Math. Systems, Estimation and Control*, **1** (1991), 107-130.

141. Estimation of variable coefficients in Fokker Planck equations using moving finite elements (with H.T. Tran and D.E. Woodward), CAMS Tech. Rep. 90-9, August, 1990, University of Southern California; *SIAM J. Num. Anal.*, **30** (1993), 1574-1602.

142. Groups generated by wave-duct acoustics with impedance boundary conditions (with G. Propst and R.J. Silcox), CAMS Tech. Rep. 90-10, August, 1990, University of Southern California.

143. Weak solutions and differentiability for size structured population models (with F. Kappel and C. Wang), CAMS Tech. Rep. 90-11, August, 1990, University of Southern California; in *DPS Control and Applications*, Birkhäuser, *Intl. Ser. Num. Math.*, Vol. 100, 1991, pp. 35–50.

144. Weak Tau approximations for distributed parameter systems in inverse problems (with J.G. Wade), CAMS Tech. Rep. No. 90-15, December, 1990, University of Southern California; *Num. Func. Anal. Optimiz.*, **12** (1991), 1–31.

145. Inverse problems for distributed parameter systems, *Proc. 29th IEEE Conf. Dec. and Control* (Honolulu, HI), December, 1990, 13-16.

146. A convergence framework for approximation methods for DPS estimation problems (with J.G. Wade), in *Inverse Problems in Engineering Sciences* (ed. by M. Yamaguti, et al), Springer-Verlag, 1991, pp. 93–99.

147. Active control of noise: a time domain approach (with W. Fang and R.J. Silcox), *Proc. Conf. on Recent Advances in Active Control of Sound and Vibration* (April, 1991, V.I.P.S.U.), S43-S47.

148. Exponentially stable approximations of weakly damped wave equations (with K. Ito and C. Wang), CAMS Tech. Rep. 91-12, May, 1991, University of Southern California; in *DPS Control and Applications*, Birkhäuser, *Intl. Ser. Num. Math.*, Vol. 100, 1991, pp. 1–33.

149. Homogenization techniques and estimation of material parameters in distributed structures (with D. Cioranescu, A. Das, R. Miller, and D.A. Rebnord), CAMS Tech. Rep. 91-16, May, 1991, University of Southern California; in *Computation and Control II*, (K. Bowers and J. Lund, eds.), Birkhäuser, 1991, pp. 13–30.

150. Computational issues in parameter estimation and feedback control problems for partial differential equation systems, CAMS Tech. Rep. 91-17, June, 1991, University of Southern California; *Physica D*, **60** (1992), 226–238.

151. Damping in control bending and torsion - an experiment (with D.J. Inman and J.W. Umland), CAMS Tech. Rep. 91-18, August, 1991, University of Southern

California; in *Proc. 1991 Amer. Control Conf., June 26-28, 1991, Boston*, 2994-2999.

152. On the significance of modeling internal damping in the control of structures (with D.J. Inman), CAMS Tech. Rep. 91-19, July, 1991, University of Southern California; *AIAA J. Guidance, Control and Dynamics*, **15** (1992), 1509–1512.

153. A comparison of time domain boundary conditions for acoustic waves in wave guides (with G. Propst and R.J. Silcox), CAMS Tech. Rep. 91-20, July, 1991, University of Southern California, *Quarterly Applied Math.*, **54** (1996), pp. 249-265.

154. Active noise control: piezoceramic actuators in fluid/structure interaction models (with W. Fang and R.C. Smith), CAMS Tech. Rep. 91-21, August, 1991, University of Southern California; *Proc. 29th IEEE Conf. Dec. and Control*, Brighton, England, December, 1991, pp. 2328–2333.

155. Input-output stability for accelerometer control systems (with K. Morris), *Proc. 29th IEEE Conf. Dec. and Control*, Brighton, England, December, 1991, pp. 2676–2681.

156. Bending and shear damping in beams: frequency domain estimation techniques, (with Y. Wang and D.J. Inman), CAMS Tech. Rep. 91-25, September, 1991; *ASME J. Vibration and Acoustics*, **116** (1994), 188-197.

157. Approximation methods for control of acoustic/structure models with piezoceramic actuators (with W. Fang, R.J. Silcox and R. Smith), CAMS Tech. Rep. 91-26, December, 1991; *J. Intell. Material Systems and Structures*, **4** (1993) 98-116.

158. The modeling and control of acoustic/structure interaction problems via piezoceramic actuators: 2-D numerical examples (with R.J. Silcox and R.C. Smith), CRSC-TR92-1, April, 1992, N.C. State Univ.; *J. Vibration and Acoustics*, **116** (1994), pp. 386-396.

159. Computational methods for identification and feedback control in structures with piezoceramic actuators and sensors (with K. Ito and Y. Wang), CRSC-TR92-2, April, 1992, N.C. State Univ.; *J. Intell. Material Systems and Structures*, **4** (1993), 469-476.

160. Homogenization models for 2-D grid structures (with D. Cioranescu and D.A. Rebnord), CRSC-TR92-4, June, 1992, N.C. State Univ.; *J. Asymptotic Analysis*, 01/1995 11(2).

161. LeGendre-Tau approximations for LQR feedback control of acoustic pressure fields (with F. Fakhroo), CRSC-TR92-5, June, 1992, N.C. State Univ.; *J. Math. Systems, Estimation and Control*, to appear.

162. Input-output stability for accelerometer control systems (with K.A. Morris), CRSC-TR92-6, July, 1992, N.C. State Univ.; *Control: Theory and Adv. Tech.*, **10** (1994), 1-17.

163. Variable coefficient distributed parameter system models for systems with piezoceramic actuators and sensors (with Y. Wang, D.J. Inman and J.C. Slater), CRSC-TR92-9, September, 1992, N.C. State Univ.; *Proc. 31st IEEE Conf. on Dec. and Control*, Tucson, Dec. 1992, pp. 1803–1808.

164. A report on the recent progress in estimation of growth and survival in size-structured cohort data for larval striped bass (with C. Wang), CRSC-TR92-10, October, 1992, N.C. State Univ.

165. Some remarks on estimation techniques for size-structured population models, CRSC-TR92-11, October, 1992, N.C. State Univ.; in *Frontiers in Mathematical Biology*, (S. Levin, ed.), *LN in Biomathematics*, **100** (1994), pp.609-623.

166. Modeling aspects for piezoelectric patch activation of shells, plates and beams (with R.C. Smith and Y. Wang), CRSC-TR92-12, November, 1992, N.C. State Univ.

167. Models for control in smart material structures (with R.C. Smith), CRSC-TR92-21, December, 1992, N.C. State Univ.; Chapter 3 in *Identification and Control in Systems Governed by PDE's*, *SIAM*, 1993, pp. 26-44.

168. Modeling of piezoceramic patch interactions with shells, plates and beams (with R. Smith and Y. Wang), *Quart. Appl. Math.*, **53** (1995), 353-381.

169. The linear regulator problem for systems with a distribution of parameters (with M. Aczon and B.G. Fitzpatrick), *Proc. 31st IEEE Conf. on Dec. and Control*, Tucson, Dec. 1992, pp. 1168–1171.

170. A piezoelectric actuator model for active vibration and noise control in thin cylindrical shells (with H.C. Lester and R.C. Smith), *Proc. 31st IEEE Conf. on Dec. and Control*, Tucson, Dec. 1992, pp. 1797–1802.

171. Modeling of coupled bending and torsion in elastic structures (with C.A. Smith), CRSC-TR92-23, December, 1992, N.C. State Univ; in *Vibration and Control of Mechanical Systems* (C.A. Tan and L.A. Bergman, eds.), ASME, New York, DE *61* (1993), pp. 11-20.

172. Well-posedness of a model for structural acoustic coupling in a cavity enclosed by a thin cylindrical shell (with R.C. Smith), CRSC-TR93-1, in *J. Appl. Math. Appl.*, **191** (1995), pp. 1-25.

173. Modeling of the structural acoustic coupling inside a thin cylindrical shell (with R.C. Smith), in *Proc. 1993 North American Conference on Smart Structures and Materials* (Albuquerque, Feb. 1993); *SPIE*, Vol. 1919, pp. 103-113.

174. Modeling and approximation of a coupled 3-D structural acoustics problem (with R.C. Smith), in *Computation and Control III*, Birkhäuser, 1993, pp. 29-48.

175. Theoretical and computational aspects of feedback in structural systems with piezoceramic controllers (with K. Ito and B.B. King), CRSC-TR93-2; in *Computation and Control III*, Birkhäuser, 1993, pp. 1-27.

176. Parameter identification in the frequency domain (with Y. Wang), CRSC-TR93-4; in *Computation and Control III*, Birkhäuser, 1993, pp. 49-62.

177. Homogenization techniques for lattice structures (with D. Cioranescu and R.E. Miller), CRSC-TR93-6; *Portugaliae Mathematica*, **53** (1996), pp. 209-227.

178. Modeling and control of a nonlinear beam (with B.B. King), in *Vibration and Control of Mechanical Systems* (C.A. Tan and L.A. Bergman, eds.), ASME, New York, DE **61** (1993), pp. 35-41.

179. Approximation and parameter identification for damped second order systems with unbounded input operators (with Y. Wang, D.J. Inman, and J.C. Slater), CRSC-TR93-9, May 1993; *Control: Theory and Adv. Tech.*, **10** (1994), 873-892.

180. Active control of acoustic pressure fields using smart material technologies (with R.C. Smith), ICASE Rep. 93-31, (June, 1993), NASA Langley Res. Ctr., Hampton, VA; in *Flow Control* (M. Gunzberger, ed.), Springer Verlag, New York, 1995, pp. 1-33.

181. Well posedness for damped second order systems with unbounded input operators (with K. Ito and Y. Wang), CRSC-TR93-10, June, 1993; *Differential and Integral Equations*, **8** (1995), pp.587-606.

182. A report on the issues in groundwater modeling (with K. Black and B. Fitzpatrick), CRSC-TR93-11, July 1993;

183. Feedback control of noise in a 2-D nonlinear structural acoustics model (with R.C. Smith), CRSC-TR93-14, August 1993; *Discrete and Continuous Dynamical Systems*, **1**(1995), pp.119-149.

184. Modeling and identification of material parameters in coupled torsion and bending (with C.A. Smith), CRSC-TR93-15, October 1993; *Math. and Computer Modeling*, **18** (1993), 1-19.

185. Damage detection and characterization in smart material structures (with Y. Wang), CRSC-TR93-17, November 1993; in *Control and Estimation of Distributed Parameter Systems; Nonlinear Phenomena*, Birkhäuser ISNM, **118**(1994), pp.21-43.

186. A PDE-based methodology for modeling, parameter estimation, and feedback control in structural and structural acoustic systems (with D.E. Brown, V.L. Metcalf, R.J. Silcox, R.C. Smith, and Y. Wang), CRSC-TR94-1, January 1994; in *Mathematics and Control in Smart Structures*, SPIE, 1994, pp. 311-320.

187. Distributed parameter system models for damage detection and location in smart material structures (with Y. Wang), in *Mathematics and Control in Smart Structures*, SPIE, 1994, pp. 199-208.

188. Noise control in a 3-D structural acoustic system: numerical simulations (with R.C. Smith), CRSC-TR94-2, February 1994; in *Intelligent Materials* (C.A. Rogers, ed.), Technomics Publ. Co., Lancaster, PA, 1994, pp. 128-139.

189. Vibration suppression with approximate finite dimensional compensators for distributed systems; Computational methods and experimental results (with R.C. Smith and Y. Wang), CRSC-TR94-3, February 1994; in *Intelligent Materials* (C.A. Rogers, ed.), Technomics Publ. Co., Lancaster, PA, 1994, pp. 140-154.

190. Robust output feedback control in a 2-D structural acoustic model with piezoceramic actuators (with M.A. Demetriou and R.C. Smith), in *Intellegent Materials* (C.A. Rogers, ed.), Technomics Publ. Co., Lancaster, PA, 1994, pp. 109-127.

191. A semigroup formulation of nonlinear size-structured distributed rate population model (with F. Kappel and C. Wang), CRSC-TR94-4, March 1994; in *Control and Estimation of Distributed Parameter Systems: Nonlinear Phenomena*, Birkhäuser ISNM, **118**(1994),pp.1-19.

192. Parameter estimation in a structural acoustic system with fully nonlinear coupling conditions (with R.C. Smith), CRSC-TR94-8, May, 1994; *Mathematical and Computer Modeling*, **23** (1996), 17-50.

193. An H_∞/minmax periodic control in a 2-D structural acoustic model with piezoceramic actuators (with M.A. Demetriou and R.C. Smith), CRSC-TR94-9, June, 1994; *IEEE Trans. Auto. Control*, **41** (1996), pp. 943-959.

194. Gas dynamics and transport in a high-pressure reactor under microgravity conditions (with K. Ito, J.S. Scroggs, H.T. Tran, K.J. Bachmann, H. Castleberry, and S. Fiechter), Proc. 2nd IEEE Mediteranean Symp. on New Directions in Control and Automation, June 1994, pp. 427-433.

195. Structural actuator control of fluid/structure interactions (with K. Ito), Proc. 33rd IEEE Conf on Decision and Control, Dec., 1994, pp. 283-288.

196. Estimation of distributed individual rates from aggregate population data (with B. Fitzpatrick and Yue Zhang), CRSC-TR94-13, Sept 1994; in *Differential Equations and Applications to Biology and to Industry*, ed by M. Martelli, et al, World Scientific Press, 1996, 13-22.

197. Active control of propeller induces noise fields (with S.L. Keeling and R.J. Silcox), CRSC-TR94-16, October, 1994.

198. Well-posedness for a one dimensional nonlinear beam (with D.S. Gilliam and V.I. Shubov), CRSC-TR94-18, October, 1994; in *Computation and Control IV*, Birkhäuser, 1995, pp. 1-22.

199. Approximation in LQR problems for infinite dimensional systems with unbounded input operators (with K. Ito), CRSC-TR94-22, November, 1994; in *J. Math. Systems, Estimation and Control*, **7** (1997), pp. 119-122.

200. The modeling and approximation of a structural acoustics problem in a hard-walled cylindrical domain (with R.C. Smith), CRSC-TR94-26, December, 1994; appeared as the Chapter: Numerical Techniques for Simulation, Parameter Estimation and Noise Control in Structural Acoustics Systems, in *Dynamics and Control of Distributed Systems* (ed. H.S. Tzou and L.A. Bergman) Cambridge University Press, 1995.

201. Modeling and parameter estimation for an imperfectly clamped plate (with R.C. Smith and Y. Wang), CRSC-TR95-2, January, 1995; in *Computation and Control IV*, Birkhäuser, 1995, pp. 23-42.

202. An experimentally validated damage detection theory in smart structures (with D.J. Inman, D.J. Leo, and Y. Wang), CRSC-TR95-7, January, 1995; *J. Sound and Vibration*, **191**, (1996), pp. 859-880.

203. Computational studies on the robustness of the H_∞ feedback control in a 2-D structural acoustic model with periodic excitation, (with M.A. Demetriou and R.C. Smith), CRSC-TR95-12, March, 1995; *Intl. J. Robust and Nonlinear Control*, **6** (1996), pp. 453-478.

204. Inverse problems in smart material structures (with R.C. Smith and Y. Wang), CRSC-TR95-13, March, 1995; in *J. Inverse and Ill-posed Problems*, **4** (1996), pp. 371-380.

205. High pressure vapor transport of $ZnGeP_2$: I. parameter evaluation (with S. Fiechter, N. Dietz, J. Scroggs, K. Ito, H. Tran, K. Bachmann, and R. Castleberry), in *7th International Symposium Experimental Methods for Microgravity Materials Science*, TMS, February 1995, 57-66.

206. High pressure vapor transport of $ZnGeP_2$: II. three-dimensional simulation of gasdynamics under microgravity (with J.S. Scroggs, K. Ito, S. Ravindran, H.T. Tran, K. Bachmann, H. Castleberry and N. Dietz), CRSC-TR95-15, April, 1995; *7th International Symposium Experimental Methods for Microgravity Materials Science*, TMS, February 1995, 67-72.

207. Implementation issues regarding PDE-based controllers - control of transient and periodic plate vibrations (with R.C. Smith), CRSC-TR95-16, April, 1995.

208. Experimental confirmation of a PDE-based approach to design of feedback controls (with R.C. Smith, D. Brown, R. Silcox, and V. Metcalf) ICASE Report 95-42, NASA Langley Research Center, May, 1995; *SIAM J. Control Opt.*, **35** (1997), pp. 1263-1296.

209. Nonlinear elastomers: modeling and estimation (with N.J. Lybeck, B. Muñoz, and L. Yanyo), CRSC-TR95-19, May, 1995; *Proc. 3rd IEEE Mediteranean Symp. on New Directions in Control*, Limassol, Cyprus, July, 1995, Vol. 1, pp. 1-7.

210. The estimation of material and patch parameters in a PDE-based circular plate model (with D.E. Brown, V.L. Metcalf, R.J. Silcox, and R.C. Smith), CRSC-TR95-24, July, 1995; *J. Sound and Vibration*, **199** (1997), pp. 777-799.

211. Global solvability for damped abstract nonlinear hyperbolic systems (with D.S. Gilliam and V.I. Shubov), CRSC-TR95-25, August, 1995; *Differential and Integral Equations*, **10** (1997), pp. 309-332.

212. A mathematical framework for curved active constrained layer structures: well-posedness and approximation (with N.G. Medhin and Y. Zhang), CRSC-TR95-32, September, 1995; *Num. Functional Anal. & Opt.*, **17** (1996), pp. 1-22.

213. Parameter estimation for an imperfectly clamped plate - numerical examples (with R.C. Smith and Y. Wang), Proc. 1995 ASME Design Eng. Tech. Conf., Vol 3, Part C, (Sept. 17-20, 1995), Boston, pp. 963-972.

214. A nonlinear Lax-Milgram lemma arising in the modeling of elastomers (with N.J. Lybeck), CRSC-TR95-37, November, 1995; *Nonlinear Partial Differential Equations, Collège de France Seminar*, Vol. 13, 1998,pp. 1-14.

215. Modeling and control of advanced chemical vapor deposition processes (with K. Ito, J.S. Scroggs, H.T. Tran, N. Dietz, and K.J. Bachmann), CRSC-TR95-39, December, 1995; *Mathematics of Microstructure Evolution* (ed. by L.Q. Chen, et al), SIAM/TMS, 1996, pp. 327-344.

216. Computational methods for estimation in the modeling of nonlinear elastomers (with N.J. Lybeck, M.J. Gaitens, B.C. Muñoz, and L.C. Yanyo), CRSC-TR95-40, December, 1995; *Kybernetika*, **32** (1996), pp. 526-542.

217. H^∞ control of noise in a 3-D structural acoustic system (with M. Demetriou and R.C. Smith), *Proc. 34th IEEE Conf. of Dec. and Control* (New Orleans), December, 1995, pp. 3719-3724.

218. A new approach in identification of dielectric constants (with Y. Wang and M. Buksas), *Proc. 34th IEEE Conf. on Decision and Control*, (New Orleans), December, 1995, pp. 3730-3733.

219. *Smart Material Structures: Modeling, Estimation and Control* (with R.C. Smith and Y. Wang),1996; Masson/John Wiley, Paris/Chichester.

220. Damage detection as inverse problems for distributed parameter systems: Computational approaches (with R.C. Smith and Y. Zhang), CRSC-TR96-12, April, 1996; *Int. J. Applied Electromagnetics and Mechanics*, **9** (1996), pp. 1-16.

221. Identification of hysteretic control influence operators representing smart actuators, Part I: Formulation (with A.J. Kurdila and G. Webb), CRSC-TR96-14, April 1996; *Mathematical Problems in Engineering*, **3** (1997), pp. 287-328.

222. Computational methods for a curved beam with piezoceramic patches (with Y. Zhang), CRSC-TR96-22, July, 1996; *J. Intelligent Material Systems and Structures*, **8** (1997), pp. 260-278.

223. Hysteretic control influence operators representing smart material actuators: Identification and approximation (with A.J. Kurdila), CRSC-TR96-23, August, 1996; Proc. 35th IEEE Conf. on Decision and Control (Kobe, Japan), December, 1996, pp. 3711-3716.

224. Utilization of coupling effects in compensator design for structural acoustic systems - Numerical examples (with M. Demetriou and R.C. Smith), CRSC-TR96-24, August 1996; *J. Acoustical Soc. Amer.*, **103** (1998), pp. 872-887.

225. Modeling the dynamic mechanical behavior of elastomers (with N.J. Lybeck, M.J. Gaitens, B.C. Muñoz, and L.C. Yanyo), CRSC-TR96-26, September, 1996.

226. Modeling methodology for elastomer dynamics (with N.J. Lybeck), CRSC-TR96-29, September, 1996; *Systems and Control in the Twenty-First Century*, (C. Byrnes, et al, eds.), Birkhäuser, PSCT22, 1996, pp. 37-50.

227. A time domain formulation for identification in electromagnetic dispersion (with M.W. Buksas and Y. Wang), CRSC-TR96-30, October, 1996; *J. Math. Systems, Estimation and Control*, **8** (1998), pp. 257-260.

228. Adaptive parameter estimation of hyperbolic distributed parameter systems with non-symmetric damping and slowly time varying parameters: Convergence proofs and numerical examples (with M.A. Demetriou), CRSC-TR96-31, November, 1996; *ESIAM: Control, Optimization and Calculus of Variations*, **3** (1998), pp. 133-162.

229. A partial differential equation approach to modeling simple extension in elastomers (with N.J. Lybeck); *J. Math. Systems, Estimation and Control*, **8** (1998), pp. 205-208.

230. Molecular layer epitaxy by real-time optical process monitoring (with K.J. Bachmann, C. Hopfner, N. Sukidi, A.E. Miller, C. Harris, D.E. Aspnes, N.A. Dietz, H.T. Tran, S. Beeler and K. Ito), CRSC-TR96-32, November, 1996; *Appl. Surf. Sci.*, **112** (1997), pp. 38-47.

231. Real-time monitoring of steady-state pulsed chemical beam epitaxy by *p*- polarized reflectance (with K.J. Bachmann, N. Sukidi,C. Höpfner, C. Harris, N.A. Dietz, H.T. Tran, S. Beeler and K. Ito), CRSC-TR96-33, December, 1996; *J. Crystal Growth*, **183** (1998), pp. 323-337.

232. Approximation results for parameter estimation in non-linear elastomers (with G.A. Pinter), CRSC-TR96-34, December, 1996; *Control and Estimation of Distributed Parameter Systems*, Intl. Series of Num. Math., (Birkhäuser Verlag, Basel) 126 (1998), pp. 1-13.

233. On the existence of normal modes of damped discrete-continuous systems (with Z-H Luo, L.A. Bergman and D.J. Inman), CRSC-TR97-5, February, 1997; *ASME J. Applied Mechanics*, **65** Dec. (1998), pp. 980-989.

234. Identification of hysteretic control influence operators representing smart actuators: Part II, Convergent approximations (with A.J. Kurdila and G. Webb), CRSC-TR97-7, April, 1997; *J. of Intelligent Material Systems and Structures*, **8** (1997), pp. 536-550.

235. Approximation issues for applications in optimal control and parameter estimation (with R.H. Fabiano), CRSC-TR97-11, April, 1997; *Modeling and Computation for Applications in Mathematics, Science and Engineering* (J.W. Jerome, ed.), Oxford University Press, June, 1998, pp. 141-165.

236. Modeling of non-symmetrical damage in plate-like structures (with P. Emeric and L. Plancke), CRSC-TR97-12, May, 1997; *Math. and Comput. Modeling*, **26** (1997), pp. 55-65.

237. Use of aggregate size-structured population data to estimate distribution of growth rates (with L.K. Potter and Y. Zhang), Memoria 8th Int. Congress on Biomathematics, Panama '97, August, 1997, pp. 3-12.

238. Stress-strain laws for carbon black and silicon filled elastomers (with L.K. Potter and Y. Zhang), CRSC-TR97-22, August, 1997; Proc. 36th IEEE-CDC, (San Diego), December, 1997, pp. 3727-3732.

239. Theoretical and numerical results for parameter estimation in nonlinear elastomers (with G. Pinter and D. Gilliam), Proc. 36th IEEE-CDC, (San Diego), December, 1997, 3733-3738.

240. Mathematical model for a laminated curved beam (with N.G. Medhin and Y. Zhang), Proc. 36th IEEE-CDC, (San Diego), December, 1997, pp. 3739-3748.

241. A dispersion model for the hepatic uptake and elimination of 2,3,7,8-tetrachorodibenzo-p-dioxin (TCDD) (with C.J. Musante and H.T. Tran), CRSC-TR97-29, September, 1997; *Math. and Comput. Modeling*, **28** (1998), pp.9-29.

242. Well-posedness for a class of abstract nonlinear parabolic systems with time delay (with C.J. Musante), CRSC-TR97-30, September, 1997; *Nonlinear Analysis: Theory, Methods and Applications*, **35** (1998), pp. 629-648.

243. Hysteresis modeling in smart material systems (with R.C. Smith), Smart Materials and Structures, (G.R. Tomlinson and W.A. Bullough, eds.) IOP Publishing, July, 1998; pp. 675-682; *Applied Mechanics and Engr.* **5** (2000), pp. 31-45.

244. Estimation and control related issues in smart material structures and fluids (with G.A. Pinter, L.K. Potter, B.C. Muñoz, and L.C. Yanyo), CRSC-TR98-2, January, 1998; *Optimization Techniques and Applications* (L. Caccetta, et al., eds.), Curtain Univ. Press, July 1998, pp. 19-34.

245. On the radio-frequency inputs in dipolar heating of adhesives (with S.R. Durso, M.A. Goodhart, and M.L. Joyner), CRSC-TR98-3, January, 1998; *J. Microwave Power and Electromagnetic Energy*, **33** (1998), pp. 231-242.

246. Mathematical model and analysis of a laminated beam with shear (with N.G. Medhin and Y. Zhang), CRSC-TR98-4, January, 1998; *Dynamic Systems and Applications*, **7** (1998), pp. 291-318.

247. Detection of non-symmetrical damage in smart plate-like structures (with P.R. Emeric), CRSC-TR98-5, January, 1998; *J. Intell. Material Systems and Structures*, **10** (1998), pp. 818-828.

248. Estimation of probability distributions for individual parameters using aggregate population observations (with B.G. Fitzpatrick, L.K. Potter, and Y. Zhang), CRSC-TR98-6, January, 1998; *Stochastic Analysis, Control, Optimization and Applications* (W.McEneaney, G. Yin, and Q. Zhang, eds.), Birkhäuser, (1998), pp. 353-371.

249. Approximation results for parameter estimation in a class of abstract nonlinear hyperbolic systems (with G.A. Pinter), *Applied Mathematics Letters*, **12** (1999), pp. 129-133.

250. Optimal design of a high pressure organometallic chemical vapor deposition reactor (with K.J. Bachmann, C. Höpfner, G.M. Kepler, S. LeSure, S.D. McCall, and J.S. Scroggs), CRSC-TR98-14, March, 1998; *Math. and Comput. Modeling*, **29** (1999), pp. 65-80.

251. Boundary shape identification in two-dimensional electrostatic problems using SQUIDs (with F. Kojima), CRSC-TR98-15, April, 1998; *J. Inverse and Ill-Posed Problems*, **8** (2000), 487-504.

252. Remarks on well-posedness theorems for damped second order systems, CRSC-TR98-16, April, 1998; *Applied Mathematics Letters*, **12** (1999), pp. 21-24.

253. A comparison of noise generation techniques and the effects on inverse problem calculations (with I. Groselj), CRSC-TR98-17, April, 1998; Matimyás Matematika, Math Society of the Philippines, August (1998), pp. 1-17.

254. Determining the structure of a biological medium using acousto-optic probes (with T. Lin), CRSC-98-21, May, 1998; *J. Inverse and Ill-Posed Problems*, **7** (1999), pp. 61-82.

255. Nonlinear exothermic contributions to radio-frequency bonding of adhesives (with S. Durso, M. G. Choi, and K. Ito), CRSC-TR98-24, June 1998; *Nonlinear Analysis: Theory, Method and Applications: Series B*, **2** (2001), pp. 257-386.

256. Reduced order model feedback control design: computational studies for thin cylindrical shells (with R.C.H. del Rosario and R.C. Smith), CRSC-TR98-25, June, 1998.

257. Reduced order model feedback control design: numerical implementation in a thin shell model (with R.C.H. del Rosario and R.C. Smith), CRSC-TR98-27, July, 1998; *IEEE Trans. Auto Control*, **45** (2000), pp. 1312-1324.

258. Electromagnetic interrogation of dielectric materials (with M.W. Buksas), CRSC-TR98-30, August, 1998.

259. Regularity and approximation of sytems arising in electromagnetic interrogation of dielectric materials (with J. Zou), CRSC-TR98-33, September, 1998; *Num. Func. Analysis and Optimization*, **20** (1999), pp. 609-627.

260. Estimation of the effective permeability in magnetorheological fluids (with T.M. Simon, F. Reitich, M.R. Jolly and K. Ito), CRSC-TR98-35, October, 1998; *J. Intel. Material Systems and Structures*, **10** (1999), pp. 872-879.

261. Predictions for a distributed parameter model describing hepatic processing of 2,3,7,8 - Tetrachlorodibenzo-*p*-dioxin, (with C.J. Musante and J.K. Raye), CRSC-TR98-38, November, 1998; *Math. and Comput. Modeling*, **33** (2001), pp. 49-64.

262. Remarks on uncertainty assessment and management in modeling and computation, CRSC-TR98-39, November, 1998; *Math. and Comput. Modeling*, **33** (2001), pp. 39-47.

263. Convergence of approximations in feedback control of structures, (with R.C.H. del Rosario), CRSC-TR98-40, November, 1998; *Math. and Comput. Modeling*, **33** (2001), pp. 65-78.

264. The effective magnetic properties of magnetorheological fluids, (with T.M. Simon, F. Reitich, M.R. Jolly and K. Ito), CRSC-TR98-42, November, 1998; *Math. and Comput. Modeling*, **33** (2001), pp. 273-284.

265. Existence of a unique weak solution to a dynamical system for nonlinear elastomers with hysteresis, (with G.A. Pinter and L.K. Potter), CRSC-TR98-43, November, 1998; *Differential and Integral Equations*, **13** (2000), pp. 1001-1024.

266. Modeling of quasi-static and dynamic load responses of filled viscoelastic materials (with G.A. Pinter, L.K. Potter, M.J. Gaitens and L.C. Yanyo), CRSC-TR98-48, December, 1998; Chapter 11 in *Mathematical Modeling: Case Studies from Industry* (E. Cumberbatch and A. Fitt, eds.), Cambridge University Press, (2001), pp. 229-252.

267. Pointwise convergence of approximation schemes for parameter estimation in parabolic equations (with L.L. Zia), December, 1998; *Applied Math Letters*, **12** (1999), pp. 27-30.

268. Simulations of particle dynamics in magnetorheological fluids (with H.V. Ly, F. Reitich, M.R. Jolly and K. Ito), CRSC-TR99-08, February, 1999; *J. Comp. Physics*, **155** (1999), pp. 160-177.

269. Modeling of nonlinear hysteresis in elastomers under uniaxial tension (with G.A. Pinter, L.K. Potter, M.J. Gaitens and L.C. Yanyo), CRSC-TR99-09, February, 1999; *J. Intelligent Material Systems and Structures*, **10** (1999), pp. 116-134.

270. Modeling of acoustic fields generated by flow past an open cavity (with D. Rubio and R.C. Smith), CRSC-TR99-13, February, 1999; in Proc. 5th AIAA/CEAS Aeroacoustics Conference (Bellevue, WA), May 10-12, 1999, pp.267-277.

271. Dynamic simulations and nonlinear homogenization study for magnetorheological fluids (with K. Ito, M.R. Jolly, H.V. Ly, F. Reitich and T.M. Simon), *Mathematics and Control in Smart Structures* (V. Varadan, ed.), SPIE **3667** (1999), pp. 92-100.

272. Reduced order model compensator control of species transport in a CVD reactor (with G.M. Kepler and H.T. Tran), CRSC-TR99-15, April, 1999; *Optimal Control Applications and Methods*, **21** (2000), pp. 143-160.

273. Dynamic simulation of the temporal response of microstructure formation in magnetorheological fluids (with H.V. Ly, K. Ito, M.R. Jolly, and F. Reitich), CRSC-TR99-29, August, 1999; *Proc. 7th Intl. Conf. on ER, MR Suspensions and Applications*, (Honolulu, HI, July 19-23, 1999), (R. Tao, ed.), World Scientific, Singapore, 2000, pp. 374-383.

274. Evaluation of material integrity using reduced order computational methodology (with M.L. Joyner, B. Wincheski, and W.P. Winfree), CRSC-TR99-30, August, 1999.

275. Nondestructive evaluation using a reduced-order computational methodology (with M.L. Joyner, B. Wincheski and W.P. Winfree), ICASE Tech Rep. 2000-10, NASA Langley Res. Ctr., March 2000; *Inverse Problems* **16** (2000), pp. 929-945.

276. A reduced order computational methodology for damage detection in structures (with M.L. Joyner, B. Wincheski and W. Winfree), *Nondestructive Evaluation of Ageing Aircraft, Airports and Aerospace Hardware* (A.K. Mal, ed.) SPIE **3994** (2000), pp. 10-17.

277. A semigroup formulation for electromagnetic waves in dispersive dielectric media (with M.W. Buksas), CRSC-TR99-34, November, 1999; Chapter 2 in *Studies in Math and its Applications* (D. Cioranescu and J.L. Lions, eds.), **31** (2002), pp. 13-27.

278. Damping: hysteretic damping and models (with G.A. Pinter), CRSC-TR99-36, December, 1999; *Encyclopedia of Vibration* (S.G. Braun, D. Ewins and S. Rao, eds.), Academic Press, London (2001), pp.658-664.

279. Approximation methods for inverse problems governed by nonlinear parabolic systems (with C.J. Musante and J.K. Raye), CRSC-TR99-38, December, 1999; *Num. Func. Anal. & Optim.*, **21** (2000), pp. 791-816.

280. Modeling and estimating uncertainty in parameter estimation (with K.L. Bihari), CRSC-TR99-40, December, 1999; *Inverse Problems*, **17** (2001), pp. 95-111.

281. Compensator control for chemical vapor deposition film growth using reduced order design models (with G.M. Kepler and H.T. Tran), CRSC-TR99-41, December, 1999; *IEEE Trans. Semiconductor Manuf.*, **14** (2001), pp. 231-241.

282. Proper orthogonal decomposition based control of transverse beam vibrations: experimental implementation (with R.C.H. del Rosario and H.T. Tran), CRSC-TR99-43, December, 1999; *IEEE Trans. Control Systems Tech.*, **10** (2002), pp. 717-726.

283. Feedback control methodologies for nonlinear systems (with S.C. Beeler and H.T. Tran), CRSC-TR99-44, December, 1999; *J. Opt. Theory Applic.*, **107** (2000), pp. 1-33.

284. A piecewise linear model for field-responsive fluids (with C.H. Lee, F. Reitich, M.R. Jolly and K. Ito), CRSC-TR00-08; March, 2000; *IEEE Trans. on Magnetics*, **37** (2001), pp. 558-560.

285. Optimizing control of open bay acoustics (with A.B. Cain, A.D. Rubio, D.M. Bortz, and R.C. Smith), CRSC-TR00-09; May, 2000; *Proc. AIAA*, AIAA-2000-1928, Maui, June 2000.

286. A finite difference approximation for a coupled system of nonlinear size-structured populations (with A.S. Ackleh and K. Deng), CRSC-TR00-11; May, 2000; *Nonlinear Analysis*, **50** (2002), pp. 727-748.

287. On a nonlinear beam equation (with A.S. Ackleh and G.A. Pinter), CRSC-TR00-14; May, 2000; *App. Math. Letters*, **15** (2000), 381-387.

288. Real-time process monitoring by p-polarized reflectance spectroscopy and closed-loop control of vapor phase epitaxy (with N. Dietz and K. Ito), CRSC-TR00-15; May, 2000; Encyclopedia of Materials: Science and Technology, (K. Bachmann, ed.) Elsevier Sci. Ltd., 2001, pp. 9488-9497.

289. Control of open bay acoustics by harmonic wave injection (with D.M. Bortz, A.D. Rubio, A.B. Cain and R.C. Smith), CRSC-TR00-18; July, 2000; *Int'l J. Aeroacoustics*, **1** (2002), 65-81.

290. *Electromagnetic Material Interrogation Using Conductive Interfaces and Acoustic Wavefronts* (with M.W. Buksas and T. Lin), Frontiers in Applied Mathematics **21**, SIAM Publ., August, 2000.

291. Modeling and computation of propagating waves from coronary stenoses (with A. Eberhardt, J. Barnes, H.T. Tran and S. Wynne), CRSC-TR00-20, August, 2000; *Comp. and Applied Math.*, **21-3** (2002) pp. 1-22.

292. Well-posedness results for models of elastomers (with A. Ackleh and G.A. Pinter), CRSC-TR00-21, September, 2000; *J. Math. Anal. Appl.*, **268** (2002), pp. 440-456.

293. Compression of bonded rubber blocks (with O.H. Yeoh and G.A. Pinter), Proc. Rubber Division, American Chemical Society, Cincinnati, OH, Oct. 17-20, 2000, Paper #84; *Rubber Chemistry and Tech.*, **75** (2002), pp. 549-561.

294. A molecular based dynamic model for viscoelastic responses of rubber in tensile deformations (with N.G. Medhin), CRSC-TR00-27, October, 2000; *Communications on Applied Nonlinear Analysis*, **8** (2001), pp. 1-18.

295. Reduced order modeling and control of thin film growth in an HPCVD reactor (with S.C. Beeler, G.M. Kepler and H.T. Tran), CRSC-TR00-33, December, 2000; SIAM *J. Appl. Math.*, **62** (2003), pp. 1251-1280.

296. Reduced order based compensation control of thin film growth in a CVD reactor (with H.T. Tran), CRSC-TR00-34, December, 2000; *Proc. Intl. Conf. on Optimal Control of Complex Dynamic Structures* (Oberwolfach, June 4-10, 2000), Int. Series Num. Math. (Burkäuser), **139**(2001), pp. 1-17.

297. Computational methods for nonsmooth acoustic systems (with J.K. Raye), CRSC-TR01-02, January, 2001; *Computational and Applied Math*, **21-1** (2002), pp. 23-46.

298. Physiologically based pharmacokinetic models for the transport of trichloroethylene in adipose tissue (with R.A. Albanese, M.V. Evans and L.K. Potter), CRSC-TR01-03, January, 2001; *Bulletin of Mathematical Biology*, **64** (2002), pp. 97-131.

299. Models for nonlinear elastomers (with L.K. Potter, G.A. Pinter, M.J. Gaitens and L.C. Yanyo), CRSC-TR01-06, March, 2001; *Proceedings of the 2nd European Conference on Structural Control*, July 3-6, 2000, Ecole National des Ponts et Chaussess, Champs-sur-Marne, France.

300. Analysis of bonded elastic blocks (with G.A. Pinter and O.H. Yeoh), CRSC-TR01-09, April, 2001; *Math and Computer Modeling*, **36** (2002), pp. 875-888.

301. Graduate education in computational science and engineering (with L.R. Petzold, U. Ascher, J. Crowley, W. Gander, L. Greengard, M. Heath, A. Lumsdaine, C. Moler, T. Oden, R. Schnabel, K. Stewart and A. Trefethen), *SIAM Review*, **43** (2001), pp. 163-177.

302. Electromagnetic interrogation techniques for damage detection (with M.L. Joyner, B. Wincheski and W.P. Winfree), CRSC-TR01-15, June, 2001; in *Electromagnetic Nondestructive Evaluation* , (F. Kojima, etal, eds.), Studies in Applied Electromagnetics and Mechanics, IOS press, Amsterdam **23** (2002) pp. 3-12.

303. Real time computational algorithms for eddy current based damage detection (with M.L. Joyner, B. Wincheski and W.P. Winfree), CRSC-TR01-16, June 2001; *Inverse Problems*, **18** (2002), pp. 795-823.

304. Well-posedness results for a class of toxicokinetic models (with L.K. Potter), CRSC-TR01-18, July, 2001; *Dynamical Systems and Applications*, **14** (2005), pp. 297–322.

305. A computational model for sound field absorption by acoustic arrays (with D.G. Cole, K.M. Furati, K. Ito and G.A. Pinter), CRSC-TR01-19, July, 2001; *J. Intel. Material Systems and Structures*, **13** (2002), pp. 231-240.

306. Analysis of thermal conductivity in composite adhesives (with K.L. Bihari), CRSC-TR01-20, August, 2001; *Num. Func. Analysis Opt.*, **23** (2002), pp. 705-745.

307. State estimation and tracking control of nonlinear dynamical systems (with S.C. Beeler and H.T. Tran), CRSC-TR00-19, August 2000;*Proceedings 8th Int'l Conference on Control of DPS*,(July, 2001, Graz, Austria), Int'l Series of Num. Math. Vol. 143, Birkhauser Verlag, Basel, 2002, pp. 1-24.

308. Model predictions and comparisons for three toxicokinetic models for the systemic transport of trichloroethylene (with L.K. Potter), CRSC-TR01-23, August, 2001; *Mathematical and Computer Modeling*, **35** (2002), pp. 1007-1032.

309. Computational methods for nonsmooth acoustic systems arising in an electromagnetic hysteresis identification problem (with J.K. Raye), *Proceedings of the 18th ASME Biennial Conference on Mechanical Vibration and Noise*, Pittsburgh, PA, September 9-12, 2001.

310. Incorporation of variability into the modeling of viral delays in HIV infection dynamics (with D.M. Bortz and S.E. Holte), CRSC-TR01-25, September, 2001; Revised, November, 2001; *Math Biosci.*, **183** (2003), pp. 63-91.

311. Feedback control of thin film growth in an HPCVD reactor via reduced order models (with S.C. Beeler, G.M. Kepler and H.T. Tran), *Proceedings 40th IEEE Conf. on Dec. and Control* (Orlando, FL, Dec. 4-7, 2001), 2001, pp. 1577-1582.

312. A well-posedness result for a shear wave propagation model (with H.T. Tran and S. Wynne), CRSC-TR01-31, Dec. 2001; *Proceedings 8th Int'l Conference on Control of DPS* (July, 2001, Graz, Austria), *Int'l Series of Num. Math*, Vol. 143, Birkhauser Verlag, Basel, 2002, pp. 25-40.

313. Well-posedness for systems representing electromagnetic/acoustic wavefront interaction (with J.K. Raye), CRSC-TR01-34, December, 2001; *ESAIM: Control, Optimization and Calculus of Variations*, **8** (2002), pp. 105-125.

314. Maxwell systems with nonlinear polarization (with G.A. Pinter), CRSC-TR02-07, March, 2002; *Nonlinear Analysis: Real World Applications*, **4** (2003), pp. 483-501.

315. Incorporation of uncertainty in inverse problems, CRSC-TR02-08, March, 2002; *Recent Development in Theories and Numerics: Intl. Conf. Inverse Problems* (Hong Kong, Jan. 9-12, 2002), (Ed. Y.C. Hon, et al) World Scientific Press, (2003), pp. 26-36.

316. Non-destructive evaluation of materials using pulsed microwave interrogating signals and acoustic wave induced reflections (with R.A. Albanese and J.K. Raye), CRSC-TR02-15, April, 2002; *Inverse Problems*, **18** (2002), pp. 1935-1958.

317. Identification of material damage in two dimensional domains using SQUID based NDE system (with F. Kojima), CRSC-TR02-16, April, 2002; *Inverse Problems*, **18** (2002), pp. 1831-1855.

318. Acoustic attenuation employing variable wall admittance (with K.M. Furati, K. Ito, N.S. Luke and C.J. Smith), CRSC-TR02-22, June, 2002; in *Directions in Mathematical Systems Theory and Optimization* (A. Rantzer and C.I. Byrnes, eds.) LNCIS 286, Springer Verlag, Berlin, 2003, pp. 15-26.

319. Time domain electromagnetic scattering using finite elements and perfectly matched layers (with B. L. Browning), CRSC-TR02-23, July, 2002; Revised, June 2003; *Comp. Meth. Appl. Mech. Engr.*, **194** (2005), pp. 149-168.

320. A parameter sensitivity methodology in the context of HIV delay equation models (with D.M. Bortz), CRSC-TR02-24, August, 2002; *J. Math. Biol.*, **50** (2005), pp. 607–625.

321. Probabilistic methods for addressing uncertainty and variability in biological models: Application to a toxicokinetic model (with L.K. Potter), CRSC-TR02-27, September, 2002; *Math. Biosci.*, **192** (2004), pp. 193-225.

322. Reduced order computational methods for electromagnetic material interrogation using pulsed signals and conductive reflecting interfaces (with G.M. Kepler), CRSC-TR02-35, December, 2002; *J. Inverse and Ill-posed Problems*, **11** (2003), pp. 343-370.

323. Modeling and imaging techniques with potential for application in bioterrorism (with D.M. Bortz, G.A. Pinter and L.K. Potter), CRSC-TR03-02, January, 2003; Chapter 6 in *Bioterrorism: Mathematical Modeling Applications in Homeland Security*, (H.T. Banks and C. Castillo-Chavez, eds.), Frontiers in Applied Math, **FR28**, SIAM, Philadelphia, PA, 2003, pp. 129-154.

324. Well-posedness for a nonsmooth acoustic system (with J.K. Raye), CRSC-TR03-09, February, 2003; *Applied Math Letters*, **17** (2004), pp. 317-322.

325. Thermal conductivity of composites under different heating scenarios (with J.H. Hogan, R.E. Tirpak and S. Wynne), CRSC-TR03-10, February, 2003.

326. Population dynamics models in plant-insect-herbivore-pesticide interactions (with B.M. Adams, J.E. Banks and J.D. Stark), CRSC-TR03-12, March, 2003, Revised, August, 2003; *Math. Biosci.*, **196** (2005), pp. 39–64.

327. Nonlinear feedback controllers and compensators: A state-dependent Riccati equation approach (with B.M. Lewis and H.T. Tran), CRSC-TR03-26, July, 2003; *J. Optimization and Control*, to appear.

328. Wellposedness for systems arising in time domain electromagnetics in dielectrics (with J.M. Bardsley), CRSC-TR03-27, July, 2003; *Int. J. Pure Appl. Math*, **46** (2008), 1–18.

329. High frequency pulse propagation in nonlinear dielectric materials (with G.A. Pinter), CRSC-TR03-39, September, 2003; *Nonlinear Analysis: Real World Applications*, **5** (2004), pp. 597-612.

330. Electromagnetic crack detection inverse problems using Terhertz interrogating signals (with N.L. Gibson and W.P. Winfree), CRSC-TR03-40, October, 2003; Revised, February, 2004, as Gap detection with electromagnetic Terhertz signals, *Nonlinear Analysis: Real World Applications*, **6** (2005), pp. 381-416.

331. Multiscale considerations in modeling of nonlinear elastomers (with N.G. Medhin and G.A. Pinter), CRSC-TR03-42, October, 2003; *J. Comp. Meth. Engr. Sci. and Mech.*, **8** (2007), 53–62.

332. Nonlinear reptation in molecular based hysteresis models for polymers (with N.G. Medhin and G.A. Pinter), CRSC-TR03-45, December, 2003; *Quarterly Applied Math.*, **62** (2004), pp. 767-779.

333. Parameter identification for a dispersive dielectric in 2D electromagnetics: Forward and inverse methodology with statistical considerations (with J.M. Bardsley), CRSC-TR03-48, December, 2003; *Intl. J. Comp. and Num. Anal. and Applic.*, **5** (2004),pp. 13-49.

334. Modeling and optimal regulation of erythropoiesis subject to benzene intoxication (with C.E. Cole, P.M. Schlosser, and H.T. Tran), CRSC-TR03-49, December, 2003; *Math. Biosci. and Engr.*, **1** (2004), pp. 15-48.

335. Well-posedness in Maxwell systems with distributions of polarization relaxation parameters (with N.L. Gibson), CRSC-TR04-01, January, 2004; *Applied Math. Letters*, **18** (2005), pp. 423-430.

336. A probabilistic multiscale approach to hysteresis in shear wave propagation in biotissue (with G.A. Pinter), CRSC-TR04-03, January, 2004; *SIAM J. Multiscale Modeling and Simulation*, **3** (2005), pp. 395–412.

337. HIV dynamics: Modeling, data analysis, and optimal treatment protocols (with B.M. Adams, M. Davidian, H.D. Kwon, H.T. Tran, S.N. Wynne and E.S. Rosenberg), CRSC-TR04-05, February, 2004; *J. Comp. and Appl. Math.*, **184** (2005), pp. 10–49.

338. Dynamic multidrug therapies for HIV: Optimal and STI control approaches (with B.M. Adams, H.D. Kwon, H.T. Tran), CRSC-TR04-18, April, 2004; *Math. Biosci. and Engr.*, **1** (2004), pp. 223-241.

339. Parameter estimation in a coupled system of nonlinear size-structured populations (with A.S. Ackleh, K. Deng and S. Hu), CRSC-TR04-22, May, 2004; Revised, November, 2004; *Math. Biosci. and Engr.*, **2** (2005), pp. 289–315.

340. A simulation-based comparison between parametric and nonparametric estimation methods in PBPK models (with Y. Ma and L.K. Potter), CRSC-TR04-25, June, 2004; *J. Inverse and Ill-Posed Problems*, **13** (2005), pp. 1-26.

341. Parameter identification for dispersive dielectrics using pulsed microwave interrogating signals and acoustic wave induced reflections in two and three dimensions (with V. A. Bokil), CRSC-TR04-27, July, 2004; Revised version appeared as A computational and statistical framework for multidimensional domain acoustoptic material interrogation, *Quart. Applied Math.*, **63** (2005), pp. 156–200.

342. Inverse problems for a class of measure dependent dynamical systems (with D.M. Bortz), CRSC-TR04-33, September, 2004; *J. Inverse and Ill-posed Problems*, **13** (2005), pp. 103–121.

343. Material surface design to counter electromagnetic interrogation of targets (with K. Ito, G.M. Kepler and J.A. Toivanen), CRSC-TR04-37, November, 2004; *SIAM J. Appl. Math.*, **66** (2006), pp. 1027-1049.

344. A molecular based model for polymer viscoelasticity: Intra- and inter-molecular variability (with J.B. Hood and N.G. Medhin) CRSC-TR04-39, December, 2004; *Applied Mathematical Modelling*, **32** (2008), 2753–2767.

345. Homogenization of periodically varying coefficients in electromagnetic materials (with V.A. Bokil, D. Cioranescu, N.L. Gibson, G. Griso, and B. Miara) CRSC-TR05-05, January, 2005; *J. Scientific Computing*, **28** (2006), pp. 191–221.

346. Sensitivity of dynamical systems to Banach space parameters (with H.K. Nguyen) CRSC-TR05-13, February, 2005; *J. Math. Analysis and Applications*, **323** (2006), pp. 146–161.

347. A hierarchical Bayesian approach for parameter estimation in HIV models (with S.L. Grove, S. Hu and Y. Ma) CRSC-TR05-19, April, 2005; *Inverse Problems*, **21** (2005), pp. 1803–1822.

348. An SDRE based estimator approach for HIV feedback control (with H.D. Kwon, J.A. Toivanen and H.T. Tran), CRSC-TR05-20, April, 2005; *Optimal Control Applications and Methods*, **27** (2006), 93–121.

349. Estimation of dynamic rate parameters in insect populations undergoing sublethal exposure to pesticides (with J.E. Banks, L.K. Dick and J.D. Stark), CRSC-TR05-22, May, 2005; *Bulletin of Mathematical Biology*, **69** (2007), 2139–2180.

350. Reflection of microwave pulses from acoustic waves: Summary of experimental and computational studies (with G.M. Kepler, R.A. Albanese and V.A. Bokil), CRSC-TR05-23, May, 2005;

351. A stick–slip/Rouse hybrid model (with J.B. Hood and N.G. Medhin), CRSC-TR05-28, August, 2005;

352. Electromagnetic inverse problems involving distributions of dielectric mechanisms and parameters (with N.L. Gibson), CRSC-TR05-29, August, 2005; *Quarterly of Applied Mathematics*, **64** (2006), 749–795.

353. Determination of interrogating frequencies to maximize electromagnetic backscatter from objects with material coatings (with K. Ito and J.A. Toivanen), CRSC-TR05-30, August, 2005; *Communications in Comp. Physics*, **1** (2006), pp. 357–377.

354. Seasonality of rotavirus infection with its vaccination (with E. Shim and C. Castillo-Chavez) CRSC-TR05-37, October, 2005; *Proc. Summer Research Conference(Snowbird)*, Contemporary Mathematics, **410**, (2006), AMS, Providence, RI, pp. 327–347.

355. A comparison of approximation methods for the estimation of probability distributions on parameters (with J. L. Davis), CRSC-TR05-38, October, 2005; *Applied Numerical Mathematics*, **57** (2007), 753–777.

356. Model fitting and prediction with HIV treatment interruption data (with B. M. Adams, M. Davidian, and E. S. Rosenberg CRSC-TR05-40, October, 2005; *Bulletin of Math. Biology*, **69** (2007), 563–584.

357. Sensitivity to noise variance in a social network dynamics model (with A. F. Karr, H. K. Nguyen and J. R. Samuels, Jr.), CRSC-TR05-41, November, 2005; *Quarterly Applied Math*, **66** (2008), 233–247.

358. A dynamic model for induced reactivation of latent virus (with G.M. Kepler, H.K. Nguyen and J. Webster-Cyriaque), CRSC-TR05-44, December, 2005: *J. Theoretical Biology*, **244** (2007), 451–462.

359. Shrimp biomass and viral infection for production of biological countermeasures (with V. A. Bokil, S. Hu, F.C.T. Allnutt, R. Bullis, A. K. Dhar and C. L. Browdy), CRSC-TR05-45 December, 2005; *Math. Biosci. and Engr.*, **3** (2006), 635–660.

360. Void detection in foam with knit lines using THz pulse interrogation (with N.L. Gibson), CRSC-TR06-05 February, 2006; *Mathematical and Computer Modeling*, **44** (2006), 807–815.

361. Modeling of viscoelastic shear: A nonlinear stick-slip formulation (with N.G Medhin and G.A. Pinter), CRSC-TR06-07, February, 2006; *Dynamic Systems and Applications*, **17** (2008), 383–406.

362. Monotone approximation for a nonlinear size and class age structured epidemic model (with V. A. Bokil and Shuhua Hu), CRSC-TR06-09, February, 2006; *Nonlinear Analysis: Real World Applications*, **8** (2007), 834–852.

363. Standard errors and confidence intervals in inverse problems: Sensitivity and associated pitfalls (with Stacey L. Ernstberger and Sarah L. Grove), CRSC-TR06-10, March, 2006; *J. Inverse and Ill-posed Problems*, **15** (2007), 1–18.

364. Development of structured treatment interruption strategies for HIV infection (with E. S. Rosenberg and M. Davidian), CRSC-TR06-12, April, 2006; *Drug and Alcohol Dependence*, **88S** (2007), S41–S51.

365. Time delay systems with distribution dependent dynamics (with S. Dediu and H.K.Nguyen), CRSC-TR06-15, May, 2006; *IFAC Annual Reviews in Control*, **31** (2007), 17–26.

366. Static two-player evasion-interrogation games with uncertainty (with S.L. Grove, K. Ito and J.A. Toivanen), CRSC-TR06-16, June, 2006; *Comp. and Applied Math*, **25** (2006), 289–306.

367. Inverse problems and model validation: An example from latent virus reactivation (with G.M. Kepler, H.K. Nguyen and J. Webster-Cyriaque), CRSC-TR06-18, August, 2006; *J. Inverse and Ill-posed Problems*, **15** (2007), 19–35.

368. Parameter estimation versus homogenization techniques in time-domain characterization of composite dielectrics (with V.A. Bokil and N.L. Gibson), CRSC-TR06-20, August, 2006; *J. Inverse and Ill-posed Problems*, **15** (2007), 117–135.

369. Analysis of stability and dispersion in a finite element method for Debye and Lorentz dispersive media (with V.A. Bokil and N. L. Gibson), CRSC-TR06-21, August, 2006; *Numerical Methods for Partial Differential Equations*, to appear.

370. Pulsed THz interrogation of SOFI with knit lines in 2D (with N.L. Gibson and W.P. Winfree), CRSC-TR06-22, September, 2006; *Proc. QNDE*, to appear.

371. Sensitivity of dynamical systems to parameters in a convex subset of a topological vector space (with S. Dediu and H.K. Nguyen), CRSC-TR06-25, September, 2006; *Math. Biosci. and Engr.*, **4** (2007), 403–430.

372. A stick-slip/Rouse hybrid model for viscoelasticity in polymers (with J. B. Hood, N. G. Medhin, and J. R. Samuels, Jr.), CRSC-TR06-26, November, 2006; *Nonlinear Analysis: Real World Applications*, **9** (2008), 2128–2149.

373. Simulations of propagating shear waves in biotissue employing an internal variable approach to dissipation (with N. S. Luke), CRSC-TR06-28, December, 2006; *Communications in Computational Physics*, **3** (2008), 603–640.

374. Viscoelasticity in polymers: Phenomenological to molecular mathematical modelling (with N. S. Luke, and J. R. Samuels, Jr.), CRSC-TR06-29, December, 2006; *Numerical Methods for Partial Differential Equations*, **23** (2007), 817–831.

375. Stochastic and deterministic models for agricultural production networks, (with P. Bai, S. Dediu, A. Y. Govan, M. Last, A. Loyd, H. K. Nguyen, M. S. Olufsen, G. Rempala, and B. D. Slenning), CRSC-TR07-06, February, 2007; *Math. Biosci. and Engr.*, **4** (2007), 373–402.

376. Analysis of viscoelastic wall properties in Ovine arteries, (with D. Valdez-Jasso, M.A. Haider, D.Bia Santana, Y. Zocalo German, R. Armentano, and M.S. Olufsen), CRSC-TR07-08, March, 2007; *IEEE Transactions on Biomedical Engineering*, **56**, (2009), 210–219.

377. Modeling HIV immune response and validation with clinical data, (with Marie Davidian, Shuhua Hu, Grace M Kepler, E. S. Rosenberg), CRSC-TR07-09, March, 2007; *J. Biological Dynamics*, **2** (2008), 357–385.

378. Time-varying vital rates in ecotoxicology: selective pesticides and aphid population dynamics, (with J.E. Banks, L.K. Dick and J.D. Stark), *Ecological Modelling*, **210** (2008), 155–160.

379. Sensitivity functions and their uses in inverse problems (with S. Dediu and S.E. Ernstberger), CRSC-TR07-12, July, 2007; *J. Inverse and Ill-posed Problems*, **15** (2007), 683–708.

380. An inverse problem statistical methodology summary (with M Davidian and J.R. Samuels, Jr.), CRSC-TR07-14, August, 2007;

381. Estimation of invasive pneumococcal disease dynamics parameters and the impact of conjugate vaccination in Australia (with K. L. Sutton and C. Castillo-Chavez), CRSC-TR07-15, August, 2007; *Math. Biosci. and Engr.*, **5** (2008), 175–204.

382. Dynamic models for insect mortality due to exposure to insecticides (with J.E. Banks, S. L. Joyner and J.D. Stark), CRSC-TR07-17, September, 2007; *Mathematical and Computer Modelling*, **48** (2008), 316–332.

383. Sensitivity equations for a size-structured population model (with S.L. Ernstberger and Shuhua Hu),CRSC-TR07-18, September, 2007; *Quarterly of Applied Mathematics*, **LXVII** (2009), 627–660.

384. Quantifying uncertainty in the estimation of probability distributions (with J.L. Davis), CRSC-TR07-21, December, 2007; *Math. Biosci. Engr.* , **5** (2008), 647–667.

385. An Inverse Problem Statistical Methodology Summary, (with M. Davidian, J.R. Samuels, Jr. and Karyn L.Sutton), CRSC-TR08-01, January, 2008; Chapter 11 in *Mathematical and Statistical Estimation Approaches in Epidemiology*, (edited by Gerardo Chowell, Mac Hyman, Luis M.A Bettencourt and Carlos Castillo-Chavez), Springer, Berlin Heidelberg New York, 2009, pp. 249–302.

386. A brief review of some approaches to hysteresis in viscoelastic polymers, CRSC-TR08-02, January, 2008; *Nonlinear Analysis: Theory, Methods and Applications*, **69** (2008), 807–815.

387. Comparison of probabilistic and stochastic formulations in modeling growth uncertainty and variability, (with J.L. Davis, S.L. Ernstberger, Shuhua Hu, E. Artimovich, A.K. Dhar and C.L. Browdy), CRSC-TR08-03, February, 2008; *J. Biological Dynamics*, **3** (2009), 130–148.

388. A model for HCMV infection in immunosuppressed patients, (with G.L. Kepler, M. Davidian and E. S. Rosenberg), CRSC-TR08-06, April, 2008; *Mathematical and Computer Modelling*, **49** (2009), 1653–1663.

389. HIV model analysis and estimation implementation under optimal control based treatment strategies, (with J. David and H.T. Tran), CRSC-TR08-07, April, 2008; *Intl. J. Pure and Applied Math*, **57** (2009), 357–392.

390. The estimation of the effective reproductive number from disease outbreak data, (with A. Cintron-Arias, C. Castillo-Chavez, L.M.A. Bettencourt and A.L. Lloyd), CRSC-TR08-08, April, 2008; *Math. Biosci. Engr.*, **6** (2009), 261–283.

391. Void detection in complex geometries, (with N.L. Gibson and W.P. Winfree), CRSC-TR08-09, May, 2008.

392. *Mathematical and Experimental Modeling of Physical and Biological Processes*, (with H.T. Tran), CRC Press, Boca Raton, FL, July, 2008, 308pp. published, January 2, 2009.

393. Well-posedness of inverse problems for systems with time dependent parameters, (with M. Pedersen), CRSC-TR08-10, August, 2008; *Arabian Journal of Science and Engineering: Mathematics,* **1** (2009), 39–58.

394. Thermal interrogation of porous materials, (with B. Boudreaux, K. Foster, C. Uttal, T. Vogel, A.K. Criner, and W.P. Winfree), CRSC-TR08-11, September, 2008; short version: Thermal Based Damage Detection in Porous Materials, *Inverse Problems in Science and Engr.*, **18** (2009), 835–851.

395. A new approach to optimal design problems, (with Sava Dediu, Stacey L. Ernstberger and Franz Kappel), CRSC-TR08-12, September, 2008.

396. Public vaccination policy using an age-structured model of pneumococcal infection dynamics, (with Karyn L. Sutton and Carlos Castillo-Chávez), CRSC-TR08-13, September, 2008; *J. Biol. Dynamics*, **4** (2010), 176–195.

397. Estimation in time-delay modeling of insecticide-induced mortality, (with J.E. Banks and S. L. Joyner), CRSC-TR08-15, October, 2008; *J. Inverse and Ill-posed Problems*, **17** (2009), 101–125.

398. Using inverse problem methods with surveillance data in Pneumococcal vaccination, (with K.L. Sutton and C. Castillo-Chavez), CRSC-TR08-19, November, 2008; *Math. and Comp. Modeling*, **51** (2010), 369–388.

399. Experimental design and estimation of growth rate distributions in size-structured shrimp populations, (with J.L. Davis, S.L. Ernstberger, S. Hu, E. Artimovich, and A.K. Dhar), CRSC-TR08-20, November, 2008; *Inverse Problems,* **25** (2009), 095003(28pp), Sept.

400. Detection of cardiac occlusions using viscoelastic wave propagation, (with J.R. Samuels, Jr.), CRSC-TR08-23, December, 2008; *Advances in Applied Mathematics and Mechanics,* **1** (2009), 1–28.

401. Viscoelastic models for passive arterial wall dynamics, (with D. Valdez-Jasso, M.A. Haider, D. Bia, Y. Zocalo, R.L. Armentano, and M.S. Olufsen), CRSC-TR08-24, December, 2008; *Advances in Applied Mathematics and Mechanics,* **1** (2009), 151–165.

402. A mathematical model for the first-pass dynamics of antibiotics acting on the cardiovascular system, (with Kathleen Holm, Nathan C. Wanner, Ariel Cintrón-Arias, Grace M. Kepler, Jeffrey D. Wetherington), CRSC-TR08-25, December, 2008; *Mathematical and Computer Modeling*, **50** (2009), 959–974.

403. A sensitivity matrix based methodology for inverse problem formulation, (with A. Cintron-Arias, A. Capaldi and A. L. Lloyd), CRSC-TR09-09, April, 2009; *J. Inverse and Ill-posed Problems*, **17** (2009), 545–564.

404. Conversion of dynamic social network stochastic differential equation model to Fokker-Planck model, (with K.L. Rehm and K.L. Sutton), CRSC-TR09-10, April, 2009.

405. Dynamic social network models incorporating stochasticity and delays, (with K.L. Rehm and K.L. Sutton), CRSC-TR09-11, May, 2009; *Quarterly Applied Math.*, **68** (2010), 783–802.

406. Standard error computations for uncertainty quantification in inverse problems: Asymptotic theory vs. bootstrapping, (with K. Holm and D. Robbins), CRSC-TR09-13, June, 2009; Revised August, 2009; Revised, May, 2010. *Mathematical and Computer Modeling*, **52** (2010), 1610–1625.

407. A computational comparison of alternatives to including uncertainty in structured population models, (with J.L. Davis and S. Hu), CRSC-TR09-14, June, 2009; in *Three Decades of Progress in Systems and Control,* (X. Hu, et al., eds.) Springer, New York, 2010, 19–33.

408. A comparison of nonlinear filtering approaches in the context of an HIV model, (with S. Hu, Z.R. Kenz and H.T. Tran), CRSC-TR09-16, July, 2009; *Math. Biosci. Engr.*, **7** (2010), 213–235.

409. Estimation of cell proliferation dynamics using CFSE data, (with W. Clayton Thompson, Karyn L. Sutton, Gennady Bocharov, Dirk Roose, Tim Schenkel, and Andreas Meyerhans), CRSC-TR09-17, August, 2009; *Bull. Math. Biology*, **73** (2011), 116–150.

410. Generalized sensitivities and optimal experimental design, (with Sava Dediu, Stacey L. Ernstberger and Franz Kappel), CRSC-TR08-12 (Revised), November, 2009; *J. Inverse and Ill-posed Problems*, **18** (2010), 25–83.

411. Electromagnetic interrogation and the Doppler shift using the method of mappings, (with S. Hu and W.C. Thompson)), CRSC-TR09-20, December, 2009; *Mathematical and Computer Modeling*, **51** (2010), 389–399.

412. Receding horizon control of HIV, (with J. David and H.T. Tran), CRSC-TR09-21, N.C. State University, December, 2009; *Optimal Control, Applications and Methods*, **32** (2011), 681–699.

413. Development of a model of erythropoiesis in patients with chronic kidney disease, (with K.M. Bliss, P. Kotanko, and H. Tran), CRSC-TR10-02, January, 2010.

414. Parameter selection methods in inverse problem formulation, (with A. Cintron-Arias and F. Kappel), CRSC-TR10-03, N.C. State University, February, 2010, Revised, November, 2010; in *Mathematical Modeling and Validation in Physiology: Application to the Cardiovascular and Respiratory Systems*,(J. J. Batzel, M.

Bachar, and F. Kappel, eds.), pp. 43 - 73, Lecture Notes in Mathematics Vol. 2064, Springer-Verlag, Berlin 2013.

415. Modeling the transmission of Vancomycin resistant enterococcus (VRE) in hospitals: A case study, (with A.R. Ortiz, C. Castillo-Chavez, G. Chowell, C. Torres-Viera and X. Wang), CRSC-TR10-05, N.C. State University, February, 2010.

416. Modeling the flash-heat experiment on porous domains, (with D. Cioranescu, A.K. Criner, and W.P. Winfree), CRSC-TR10-06, N.C. State University, May, 2010; *Quarterly Applied Math.*, **LXX** (2011), 53–67; S 0033-569X(2011)01230-8 (15pages).

417. A deterministic methodology for estimation of parameters in dynamic Markov chain models, (with A. R. Ortiz, C. Castillo-Chavez, G. Chowell, and X. Wang), CRSC-TR10-07, N.C. State University, May, 2010; *J. Biological Systems*, **19** (2011), 71–100. .

418. A brief review of elasticity and viscoelasticity, (with Shuhua Hu and Zackary R. Kenz), CRSC-TR10-08, N.C. State University, May, 2010; *Advances in Applied Mathematics and Mechanics,* **3** (2011), 1–51.

419. Label structured cell proliferation models, (with F. Charles, M.Doumic-Jauffret, K.L. Sutton and W.C. Thompson), CRSC-TR10-10, N.C. State University, June, 2010; *Applied Math Letters*, **23** (2010), 1412–1415.

420. Comparison of optimal design methods in inverse problems, (with K. Holm and F. Kappel), CRSC-TR10-11, N.C. State University, July, 2010; *Inverse Problems*, **27** (2011), 075002.

421. Dynamic electromagnetic evasion-pursuit games with uncertainty, (with S. Hu, K. Ito and S.G. Muccio), CRSC-TR10-13, N.C. State University, Raleigh, NC, August, 2010; *Numerical Mathematics: Theory, Methods and Applications*, **4** (2011), 399–418.

422. A discrete events delay differential system model for transmission of Vancomycin-resistant Enterococcus (VRE) in hospitals, (with A.R. Ortiz, C. Castillo-Chavez, G. Chowell and X. Wang), CRSC-TR10-14, N.C. State University, Raleigh, NC, September, 2010; *J. Inverse and Ill-posed Problems*, **18** (2011), 787–821.

423. A two-player zero-sum electromagnetic differential game with uncertainty, (with S. Hu), CRSC-TR10-15, N.C. State University, Raleigh, NC, September, 2010;

424. Inverse problems for nonlinear delay systems, (with K. Rehm and K. Sutton), CRSC-TR10-17, N.C. State University, Raleigh, NC, November, 2010; *Methods and Applications of Analysis,* **17** (2010), 331–356.

425. Host immune responses that promote initial HIV spread, (with K. Wendelsdorf, G. Dean, S. Hu and S. Nordone), CRSC-TR10-18, N.C. State University, Raleigh, NC, December, 2010; *J. Theoretical Biology,* **289** (2011), 17–35.

426. Model formulation of drinking behavior using longitudinal data, (with K.L. Rehm, K.L. Sutton, C. Davis, L. Hail, A. Kuerbis, and J. Morgenstern), CRSC-TR10-19, N.C. State University, Raleigh, NC, December, 2010.

427. Feedback control of HIV antiviral therapy with long measurement time, (with Taesoo Jang and Hee-Dae Kwon), CRSC-TR11-01, N.C. State University, Raleigh, NC, January, 2011; *Intl. J. Pure and Applied Math*, **66** (2011), 461–485.

428. Nonlinear stochastic Markov processes and modeling uncertainty in populations, (with S. Hu), CRSC-TR11-02, N.C. State University, Raleigh, NC, January, 2011; *Math. Biosci. Engr.*, **9** (2012), 1–25.

429. A computational model of red blood cell dynamics in patients with chronic kidney disease, (with K.M. Bliss, P. Kotanko and H. Tran), CRSC-TR11-03, N.C. State University, Raleigh, NC, February, 2011.

430. A zero-sum electromagnetic evader-interrogator differential game with uncertainty, (with Shuhua Hu), CRSC-TR11-04, N.C. State University, Raleigh, NC, February, 2011; *Applicable Analysis*, to appear.

431. A new model for the estimation of cell proliferation dynamics using CFSE data, (with K.L. Sutton, W.C. Thompson, G. Bocharov, M. Doumic, T. Schenkel, J. Argilaguet, S. Giest, C. Peligero and A. Meyerhans), CRSC-TR11-05, N.C. State University, Raleigh, NC, March, 2011; *J. Immunological Methods,* **373** (2011), 143–160; DOI:10.1016/j.jim.2011.08.014.

432. Parameter estimation for the heat equation on perforated domains, (with D. Cioranescu, A.K. Criner, and W.P. Winfree), CRSC-TR11-06, N.C. State University, Raleigh, NC, April, 2011; *J. Inverse and Ill-posed Problems*, DOI.10.1515/JIIP.2011.051 (33 pages).

433. Modeling and optimal control of immune response of renal transplant recipients, (with Shuhua Hu, Taesoo Jang and Hee-Dae Kwon), CRSC-TR11-07, N.C. State University, Raleigh, NC, July, 2011; *J. Biological Dynamics*, DOI: 10.1080/17513758.2012.655328 (29 pages).

434. Dynamic modeling of behavior change in problem drinkers, (with Keri L. Rehm, Karyn L. Sutton, Christine Davis, Lisa Hail, Alexis Kuerbis, and Jon Morgenstern), CRSC-TR11-08, N.C. State University, Raleigh, NC, August, 2011; Short version, Revised, November, 2011; *Quarterly of Applied Mathematics*, **LXXII** (2014), 209–251.

435. Propagation of uncertainty in dynamical systems, (with Shuhua Hu), CRSC-TR11-11, N.C. State University, Raleigh, NC, October, 2011; Proceedings 43rd ISCIE International Symposium on Stochastic Systems Theory and Its Applications, Shiga, Japan, October 28-29, 2011.

436. Experimental design and inverse problems in plant biological modeling, (with M. Avery, K. Basu, Y. Cheng, E. Eager, S. Khasawinah, L. K. Potter, K.L. Rehm), CRSC-TR11-12, N.C. State University, Raleigh, NC, October, 2011; *J. Inverse and Ill-posed Problems*, DOI 10.1515/jiip-2012-0208.

437. A comparison of computational efficiencies of stochastic algorithms in terms of two infection models, (with Shuhua Hu, Michele Joyner, Anna Broido, Brandi Canter, Kaitlyn Gayvert and Kathryn Link), CRSC-TR11-13, N.C. State University, Raleigh, NC, October, 2011; *Math. Biosci. Engr.*, **9** (2012), 487–526.

438. A Monte Carlo based analysis of optimal design criteria, (with K.J. Holm and F. Kappel), CRSC-TR11-14, N.C. State University, Raleigh, NC, November, 2011; *J. Inverse and Ill-posed Problems*, DOI 10.1515/jiip-2012-0201.

439. Thermal damage detection and characterization in porous materials, (with A. K. Criner), CRSC-TR11-16, N.C. State University, Raleigh, NC, November, 2011; *Inverse Problems,* **28** (2012), 065021 (18pp).

440. Simulation algorithms for continuous time Markov Chain models, (with Shuhua Hu, Michele Joyner, Anna Broido, Brandi Canter, Kaitlyn Gayvert and Kathryn Link), CRSC-TR11-17, N.C. State University, Raleigh, NC, December, 2011; Proceedings Intl Workshop on Simulation and Modeling related to Computational Science and Robotics Tech., (SiMCRT2011), IOS Press, Amsterdam, p. 3–19.

441. A Functional Analysis Framework for Modeling, Estimation and Control in Science and Engineering, Taylor and Frances Publishing, Accepted, January 15, 2012. (258 pages)

442. A division-dependent compartmental model for computing cell numbers in CFSE-based lymphocyte proliferation assays, (with W.C. Thompson, C. Peligero, S. Giest, J. Argilaguet and A. Meyerhans), CRSC-TR12-03, N. C. State University, Raleigh, NC, January, 2012; *Math. Biosci. Engr.*, **9** (2012), 699–736.

443. Modeling red blood cell and iron dynamics in patients with chronic kidney disease, (with Karen M. Bliss and Hien Tran), CRSC-TR12-04, N. C. State University, Raleigh, NC, February, 2012; *Intl. J. Pure and Applied Math.*, **75** (2012), 103–140.

444. Generalized sensitivity analysis for delay differential equations, (with Danielle Robbins and Karyn L. Sutton), CRSC-TR12-07, N. C. State University, Raleigh,

NC, March, 2012; Proceedings of the Workshop on Control and Optimization of PDEs, Mariatrost, Austria, October 10-14, 2011, Basel: Birkhuser/Springer. International Series of Numerical Mathematics **164** (2013), p. 19–44: DOI: 10.1007/978-3-0348-0631-2-2

445. Uncertainty propagation in physiologically structured population models, (with Shuhua Hu), CRSC-TR12-08, N. C. State University, Raleigh, NC, March, 2012; *Journal on Mathematical Modelling of Natural Phenomena*, **7** (2012), 7–23.

446. Material parameter estimation and hypothesis testing on a 1D viscoelastic stenosis model: methodology, (with S. Hu, Z.R. Kenz, C. Kruse, S. Shaw, J.R. Whiteman, M.P. Brewin, S.E. Greenwald and M.J. Birch), CRSC-TR12-09, N. C. State University, Raleigh, NC, April, 2012; *J. Inverse and Ill-posed Problems*, **21** (2013), 25–57.

447. Mathematical models of dividing cell populations: Application to CFSE data, (with W. Clayton Thompson), CRSC-TR12-10, N. C. State University, Raleigh, NC, April, 2012; *Journal on Mathematical Modelling of Natural Phenomena*, **7** (2012), 24–52.

448. Experimental design for vector output systems, (with Keri L. Rehm), CRSC-TR12-11, N. C. State University, Raleigh, NC, April, 2012; *Inverse Problems in Sci. and Engr.*, **22** (2014) 557590. doi:10.1080/17415977.2013.797973.

449. A division-dependent compartmental model with cyton and intracellular label dynamics, (with W. Clayton Thompson), CRSC-TR12-12, N. C. State University, Raleigh, NC, May, 2012; *Intl. J. of Pure and Applied Math.*, **77** (2012), 119–147.

450. A review of selected techniques in inverse problem nonparametric probability distribution estimation (with Z.R. Kenz and W. Clayton Thompson), CRSC-TR12-13, N. C. State University, Raleigh, NC, May, 2012; *J. Inverse and Ill-posed Problems*, **20** (2012), 429–460; DOI 10.1515/jip-2012-0037.

451. Theoretical foundations for traditional and generalized sensitivity functions for nonlinear delay differential equations (with Danielle Robbins and Karyn L. Sutton), CRSC-TR12-14, N. C. State University, Raleigh, NC, July, 2012; *Math. Biosci. Engr.*, **10** (2013), 1301–1333; http://dx.doi.org/10.3934/mbe.2013.10.1301

452. Experimental design for distributed parameter vector systems (with K.L. Rehm), CRSC-TR12-17, N. C. State University, Raleigh, NC, August, 2012; *Applied Mathematics Letters,* **26** (2013), 10–14; http://dx.doi.org/10.1016/j.aml.2012.08.003.

453. An extension of RSS-based model comparison tests for weighted least squares (with Z.R. Kenz and W.C. Thompson), CRSC-TR12-18, N. C. State University, Raleigh, NC, August, 2012; *Intl. J. Pure and Appl. Math.,* **79** (2012), 155–183.

454. Uncertainty propagation and quantification in a continuous time dynamical system (with Shuhua Hu), CRSC-TR12-19, N. C. State University, Raleigh, NC, September, 2012; *Intl. J. Pure and Appl. Math.,* **80** (2012), 93–145.

455. Modeling CFSE label decay in flow cytometry data (with Amanda Choi, Tori Huffman, John Nardini, Laura Poag and W. Clayton Thompson), CRSC-TR12-20, N. C. State University, Raleigh, NC, November, 2012; *Applied Mathematical Letters*, **26** (2013), 571–577. doi:10.1016/j.aml.2012.12.010.

456. Least squares estimation of probability measures in the Prohorov Metric Framework (with W. Clayton Thompson), CRSC-TR12-21, N. C. State University, Raleigh, NC, November, 2012.

457. Model validation for a noninvasive arterial stenosis detection problem, (with Shuhua Hu, Zackary R. Kenz, Carola Kruse, Simon Shaw, John Whiteman, M.P. Brewin, S.E. Greenwald and M.J. Birch), CRSC-TR12-22, N. C. State University, Raleigh, NC, December, 2012; *Mathematical Biosciences and Engr.*, **11** (2013), 427–448, doi:10.3934/mbe.2014.11.427

458. A novel statistical analysis and interpretation of flow cytometry data, (with D. F. Kapraun, W. Clayton Thompson, Cristina Peligero, Jordi Argilaguet and Andreas Meyerhans), CRSC-TR12-23, N. C. State University, Raleigh, NC, December, 2012; *J. Biological Dynamics*, **7** (2013), 96–132, DOI: 10.1080/17513758.2013.812753.

459. Optimal design techniques for distributed parameter systems, (with D. Rubio, N. Saintier and M.I. Troparevsky), CRSC-TR13-01, N. C. State University, Raleigh, NC, January, 2013; *Proceedings 2013 SIAM Conference on Control Theory*, SIAM, pp. 83–90.

460. Stochastic vs. deterministic models for systems with delays, (with J. Catenacci and S. Hu), CRSC-TR13-02, N. C. State University, Raleigh, NC, January, 2013; *Proceedings 1st IFAC Workshop on Control of Systems Governed by Partial Differential Equations, (CPDE 2013)*, Paris, September 25-27, 2013, pp. 67–72.

461. Optimal electrode positions for the inverse problem of EEG in a simplified model in 3D, (with D. Rubio, N. Saintier and M.I. Troparevsky), *Proceedings MACI 2013: Fourth Conference on Applied, Computational and Industrial Mathematics*, May 15-17, 2013, Buenos Aires, AR; MACI **4**, 521–524..

462. Modeling red blood cell and iron dynamics in patients undergoing periodic EPO and iron treatments, (with K.M. Bliss, D.F. Kapraun and H. Tran), CRSC-TR13-03, N. C. State University, Raleigh, NC, February, 2013.

463. A comparison of stochastic systems with different types of delays, (with J. Catenacci and S. Hu), CRSC-TR13-04, N. C. State University, Raleigh, NC, March,

2013; *Stochastic Analysis and Applications*, **31** (2013), 913–955; DOI 10.1080 /07362994.2013.806217

464. Comparison of frequentist and Bayesian confidence analysis methods on a viscoelastic stenosis model, (with Z.A. Kenz and R.C. Smith), CRSC-TR13-05, N. C. State University, Raleigh, NC, April, 2013; *SIAM/ASA Journal on Uncertainty Quantification*, **1** (2013), 348-369.

465. High order space-time finite element schemes for acoustic and viscodynamic wave equations with temporal decoupling, (with M.J. Birch, M.P. Brewin, S.E. Greenwald, S. Hu, Z.R. Kenz, C. Kruse, M. Maischak, S. Shaw and J.R. Whiteman), CRSC-TR13-06, N. C. State University, Raleigh, NC, June, 2013; *International Journal for Numerical Methods in Engineering*, **98** (2014), 131–156: Published online 7 February 2014 in Wiley Online Library (wileyonlinelibrary.com). DOI: 10.1002/nme.4631

466. Mathematical modeling of HCV kinetics, (with R. Baraldi, K. Cross, C. McChesney, L. Poag, E. Thorpe, and K. Flores), CRSC-TR13-07, N. C. State University, Raleigh, NC, July, 2013.

467. A mathematical model of RNA3 recruitment in the replication cycle of Brome Mosaic Virus, (with T. Huffman, K. Link, J. Nardini, L. Poag, K. Flores, B. Blasco, J. Jungeisch, and J. Diez), CRSC-TR13-08, N. C. State University, Raleigh, NC, July, 2013; *International Journal of Pure and Applied Mathematics*, **89** (2013), 251–274; DOI: 10.12732/ijpam.v89i2.9

468. Experimental and biological variability in CFSE-based flow cytometry data, (with D.F. Kapraun, K.G. Link, W.C. Thompson, C. Peligero, J. Argilaguet, and A. Meyerhans), CRSC-TR13-10, N. C. State University, Raleigh, NC, September, 2013.

469. Decomposition of permittivity contributions from reflectance using mechanism models, (with J. Catenacci, S. Hu, and Z.R. Kenz), CRSC-TR13-11, N. C. State University, Raleigh, NC, September, 2013; *Proceedings 2014 American Control Conference*, June 3-6, 2014, Portland, OR, pp. 367–372.

470. *Modeling and Inverse Problems in the Presence of Uncertainty*, (with Shuhua Hu, and W. Clayton Thompson), Taylor and Frances Publishing, Accepted, October 13, 2013. (411 pages), April, 2014.

471. Modeling the East Coast Akalat population: Model comparison and parameter estimation, (with J.E. Banks, C. Jackson, and K. Rinnovatore), CRSC-TR13-12, N. C. State University, Raleigh, NC, October, 2013;

472. Uncertainty quantification for a model of HIV-1 patient response to antiretroviral therapy interruptions, (with R. Baraldi, K. Cross, C. McChesney, L. Poag, E. Thorpe, and K.B. Flores), CRSC-TR13-13, N. C. State University, Raleigh, NC, October, 2013; *Proceedings 2014 American Control Conference*, June 3-6, 2014, Portland, OR, pp. 2753–2758.

473. Optimal design for estimation in distributed parameter systems, *Proceedings 2014 IFAC Conference*, Capetown, South Africa, accepted.

474. Analysis of variability in estimates of cell proliferation parameters for cyton-based models using CFSE-based flow cytometry data, (with D.F. Kapraun, K.G. Link, W.C. Thompson, C. Peligero, J. Argilaguet, and A. Meyerhans), CRSC-TR13-14, N. C. State University, Raleigh, NC, November, 2013; *J. Inverse and Ill-posed Problems*, **23** (2014), 135-171, ISSN (Online) 1569-3945, ISSN (Print) 0928-0219, DOI: 10.1515/jiip-2013-0065, July 2014

475. Characterisation of elastic and acoustic properties of an agar-based tissue mimicking material, (with M.P.Brewin, M.J.Birch, D.J.Mehta, J.W. Reeves, S.Shaw, C. Kruse, J.R. Whiteman, S.Hu, Z.R.Kenz, S.E.Greenwald), November, 2013; *Annals of Biomedical Engineering*, March 2015; DOI: 10.1007/s10439-015-1294-7, to appear.

476. Uncertainty quantification in modeling HIV viral mechanics, (with R. Baraldi, K. Cross, C. McChesney, L. Poag, E. Thorpe, and K.B. Flores), CRSC-TR13-16, N. C. State University, Raleigh, NC, December, 2013; *Mathematical Biosciences and Engineering*, **12** (2015), 937–964.

477. Efficient numerical schemes for Nucleation-Aggregation models: Early steps, (with M. Doumic and C. Kruse), CRSC-TR14-01, N. C. State University, Raleigh, NC, March, 2014; *J. Mathematical Biol.*, submitted (as A Numerical Scheme for the Early Steps of Nucleation-Aggregation Models)

478. Optimal design for parameter estimation in EEG problems in a 3D multilayered domain, (with D. Rubio, N. Saintier, and M.I. Troparevsky), CRSC-TR14-02, N. C. State University, Raleigh, NC, March, 2014; *Mathematical Biosciences and Engineering*, **12** (2015), 739–760, doi:10.3934/mbe.2015.12.739

479. Optimal sampling frequency and timing of threatened tropical bird populations: a modeling approach, (with J.E. Banks, H.T. Banks, K. Rinnovatore, and C.M. Jackson), CRSC-TR14-03, N. C. State University, Raleigh, NC, March, 2014; *Ecological Modelling* 05/2015; 303:70-77.

480. Size distribution of amyloid fibrils. Mathematical models and experimental data, (with S. Prigent, H.W. Haffaf, M. Hoffmann, H.Rezaei, and M. Doumic), CRSC

TR14-04, N. C. State University, Raleigh, NC, April, 2014; *International Journal of Pure and Applied Mathematics*, **93** (2014), 845–878.

481. Asymptotic properties of probability measure estimators in a nonparametric model, (with Jared Catenacci and Shuhua Hu), CRSC TR14-05, N. C. State University, Raleigh, NC, May, 2014; *SIAM/ASA Journal on Uncertainty Quantification*, to appear.

482. Parameter estimation in distributed systems: Optimal design, (with K.L. Rehm), CRSC TR14-06, N. C. State University, Raleigh, NC, May, 2014; *Eurasian Journal of Mathematical and Computer Applications*, **2** (2014), 70-79.

483. The effects of parametrization on inverse problems, (with R. Baraldi, J. Nardini, E. Thorpe), CRSC-TR14-07, N. C. State University, Raleigh, NC, May, 2014.

484. Estimation of distributed parameters in permittivity models of composite dielectric materials using reflectance, (with J. Catenacci and S. Hu), CRSC-TR14-08, N. C. State University, Raleigh, NC, June, 2014; *J. Inverse and Ill-posed Problems*, to appear.

485. Modeling immune response to BK virus infection and donor kidney in renal transplant recipients, (with S. Hu, K. Link, E.S. Rosenberg, S. Mitsuma and L. Rosario), CRSC-TR14-09, N. C. State University, Raleigh, NC, June, 2014; *J. Inverse Problems in Science and Engineering*, DOI:10.1080/17415977.2015.1017484

486. Immuno-modulatory strategies for reduction of HIV reservoir cells, (with K.B. Flores, S. Hu, E. Rosenberg, M. Buzon, X. Yu and M. Lichterfeld), CRSC-TR14-10, N. C. State University, Raleigh, NC, July, 2014; *Journal Theoretical Biology*, **372** (2015), 146–158. doi:10.1016/j.jtbi.2015.02.006

487. Optimal design of non-equilibrium experiments for genetic network interrogation, (with Kaska Adoteye and Kevin B. Flores), CRSC-TR14-12, N. C. State University, Raleigh, NC, September, 2014; *Applied Math Letters*, **40** (2015), 84–89.

488. Model comparison tests to determine data information content, (with J.E. Banks, K. Link, J.A. Rosenheim, Chelsea Ross, and K.A. Tillman), CRSC-TR14-13, N. C. State University, Raleigh, NC, October, 2014; *Applied Math Letters*, **43** (2015), 10–18.

489. Statistical validation of structured population models for *Daphnia magna*, (with K. Adoteye, K. Cross, S. Eytcheson, K.B. Flores, G.A. LeBlanc, T. Nguyen, C. Ross, E. Smith, M. Stemkovski and S. Stokely), CRSC-TR14-14, N. C. State University, Raleigh, NC, November, 2014; *Mathematical Biosciences*, bf 266 (2015), 73-84.

490. Information content in data sets for a nucleated-polymerization model, (with M. Doumic, C. Kruse, S. Prigent and H.Rezaei), CRSC-TR14-15, N. C. State University, Raleigh, NC, November, 2014; *J. Biological Dynamics*, DOI: 10.1080/17513758.2015.1050465

491. Summary report for HIV random clinical trial conducted in 2009-2014, (with S. Hu and E. Rosenberg), CRSC-TR14-16, N. C. State University, Raleigh, NC, December, 2014.

492. Estimation of time-varying mortality rates using continuous models for *Daphnia magna*,(with Kaska Adoteye, Kevin B. Flores, and Gerald A. LeBlanc), CRSC-TR14-17, N. C. State University, Raleigh, NC, December, 2014; *Applied Mathematics Letters*, **44** (2015), 12–16. DOI:10.1016/j.aml.2014.12.01.

493. Parameter selection and verification techniques based on global sensitivity analysis illustrated for an HIV model, (with M.T. Wentworth and R.C. Smith), CRSC-TR15-01, N. C. State University, Raleigh, NC, February, 2015; *SIAM/ASA Journal on Uncertainty Quantification*, submitted.

494. Evaluating the importance of mitotic asymmetry in cyton-based models for CFSE-based flow cytometry data, (with D.F. Kapraun, C. Peligero, J. Argilaguet, and A. Meyerhans), CRSC-TR15-02, N. C. State University, Raleigh, NC, February, 2015; *Intl. J. Pure and Applied Mathematics,* **100** (2015), No. 1; DOI: 10.12732/ijpam.v100i1.12

495. Existence and consistency of a nonparametric estimator of probability measures in the Prohorov metric framework (with W. Clayton Thompson), *Intl. J. Pure and Applied Mathematics*, **103** (2015), 819–843; DOI:10.12732/ijpam.v103i4.15

496. Optimal design for minimizing uncertainty in dynamic equilibrium systems, (with Robert Baraldi and K. B. Flores), CRSC-TR15-03, Center for Research in Scientific Computation, N. C. State University, Raleigh, NC, February, 2015; *Eurasian Journal of Mathematical and Computer Applications*, **3** (2015), 20–43.

497. Modeling populations of *Lygus Hesperus* on cotton fields in the San Joaquin Valley of California: The importance of statistical and mathematical model choice, (with J.E. Banks, J. Rosenheim, and K. Tillman), CRSC-TR15-04, Center for Research in Scientific Computation, N. C. State University, Raleigh, NC, May, 2015; *J. Biological Dynamics*, submitted.

498. Use of Difference-Based Methods to Explore Statistical and Mathematical Model Discrepancy in Inverse Problems, (with J. Catenacci and S. Hu), CRSC-TR15-05, Center for Research in Scientific Computation, N. C. State University, Raleigh, NC, May, 2015; Revised, Sept, 2015; *J. Inverse Ill-Posed Problems*, submitted.

499. Method comparison for estimation Of distributed parameters in permittivity models using reflectance, (with J. Catenacci and S. Hu), CRSC-TR15-06, Center for Research in Scientific Computation, N. C. State University, Raleigh, NC, May, 2015; *Eurasian Journal of Mathematical and Computer Applications*, **3**, (2015), 4–23.

500. Correlation of parameter estimators for models admitting multiple parametrizations, (with Kaska Adoteye, Robert Baraldi, Kevin Flores, John Nardini, and W. Clayton Thompson), CRSC-TR15-07, Center for Research in Scientific Computation, N. C. State University, Raleigh, NC, June, 2015; *Intl. J. Pure and Applied Mathematics,* to appear.

501. Modelling pesticide treatment effects on *Lygus hesperus* in cotton fields, (with J.E. Banks, Neha Murad, J. A Rosenheim, and K. Tillman), CRSC-TR15-09, Center for Research in Scientific Computation, N. C. State University, Raleigh, NC, September, 2015; *Proceedings, 27 th IFIP TC7 Conference 2015 on System Modelling and Optimization,* submitted.

502. Statistical parameter estimation of dielectric materials using MCMC for nonlinear hierarchical models, (Fumio Kojima and H. Thomas Banks), Proc. ISEM2015, Sept, 2015, Awaji Island, JP; *International Journal of Applied Electromagnetics and Mechanics,* submitted.

503. Quantifying the degradation in thermally treated ceramic matrix composites, (with J. Catenacci and A. Criner), CRSC-TR15-10, Center for Research in Scientific Computation, N. C. State University, Raleigh, NC, September, 2015; *Intl J. of Applied Electromagnetics and Mechanics,* submitted.

504. The complex-step method for sensitivity analysis of non-smooth problems arising in biology, (with K. Bekele-Maxwell, L. Bociu, M. Noorman, and K. Tillman), CRSC-TR15-11, Center for Research in Scientific Computation, N. C. State University, Raleigh, NC, October, 2015; *Eurasian Journal of Mathematical and Computer Applications,* submitted.

Invited Lectures

Lectures at numerous universities in the U.S. and Europe plus:

1. Conference on Calculus of Variations and Control Theory, University of Michigan, November 30, 1969.

2. SIAM 1971 National Meeting, Seattle, Washington, June 1971.

3. Symposium on Ordinary Differential Equations, University of Utah, Salt Lake City, Utah, March 7-11, 1972.

4. Institut de Recherche d'Informatique et d'Automatique, Rocquencourt, France, May and June 1972.

5. Symposium on Mathematical Biology, University of Missouri, Columbia, Missouri, April 5-6, 1973.

6. 1973 Joint Automatic control Conference (JACC), Columbus, Ohio, June 1973.

7. Canadian Math. Congress, 14th Biennial Seminar, London, Ontario, August 12-24, 1973.

8. 1973 IEEE-SMC International Conference on Cybernetics and Society, Boston, Massachusetts, November 5-7, 1973.

9. International Conference on Optimal Control Theory, Stafan Banach International Mathematics Center, Institute of Mathematics, Polish National Academy of Sciences, Warsaw, Poland, January 1974.

10. Italy-U.S. Seminar on Variable Structure Systems with Emphasis on Biology and Economics, Portland, Oregon, May 26-31, 1974.

11. International Conference on Differential Equations, University of Southern California, Los Angeles, September 3-7, 1974.

12. NSF-AAAS Chautauqua Lectures: Mathematical Modeling in the Life Sciences; Western Circuit (Harvey Mudd, U. Texas, Oregon Graduate Center, Stanford); November 1975 and March 1976; Central Circuit (U. Wisconsin, U. Missouri, Kansas City, Miami U., L.S.U.) October 1976 and March 1977; Eastern Circuit (U. Hartford, U. Georgia), November 1977 and March 1978.

13. 1976 John W. Hurst Invited Lectures in Analysis, Montana State University, May 5-6, 1976.

14. IRIA and Universite de Technologie de Compiegne, France, May 12-29, 1976.

15. International Conference on Nonlinear Systems and Applications, University of Texas - Arlington, July 19-23, 1976.

16. American Mathematical Society Meeting, New York, April 14-15, 1977.

17. International Conference on Methods of Mathematical Programming, Zakopane, Poland, September, 1977.

18. International Conference on Nonlinear Methods, Arlington, Texas, April 1978.

19. SIAM Southeastern Regional Meeting, Columbia, S.C., April 7-8, 1978.

20. Principal Lecturer (10 lectures) NSF-CBMS Regional Conference, "Modeling and Differential Equations in Biology", Southern Illinois University, Carbondale, June 5-9, 1978.

21. International Conference on Functional Differential Equations and Approximation of Fixed Points, Universitat Bonn, July 17-22, 1978.

22. American Math. Society short course "Introduction to Systems and Control Theory", Providence, RI, August 6-7, 1978.

23. International Symposium on Systems Optimization and Analysis, IRIA, Rocquencourt, France, December 11-13, 1978.

24. Optimization Days 1979, McGill University, Montreal, May 23-25, 1979.

25. Canadian Math. Society Summer Seminar (5 lectures), University of Toronto, July 30-August 3, 1979.

26. Workshop on Applied Control Theory to Renewable Resource Management and Ecology, University of Canterbury, Christchurch, New Zealand, January 7-11, 1980.

27. Symposium on Biomathematics, Pisa, Italy, April 1-2, 1980.

28. Conference on Math. Biology, Southern Illinois University, Carbondale, IL, May 27-28, 1980.

29. International Conference on Nonlinear Phenomena in the Math. Sciences, University of Texas - Arlington, June 16-20, 1980.

30. A.M.S. Summer Seminar on Math. Aspects of Physiology, University of Utah, June 15-27, 1980.

31. AAAS-NSF Chautaugua Short Courses for Faculty; University of Texas - Austin; New York Polytechnic - Westchester; November 1980 and March 1981.

32. International Congress on Applied Systems Research and Cybernetics, Acapulco, Mexico, December 12-16, 1980.

33. SIAM Regional (Oklahoma-Texas) Meeting, Austin, Texas, March 13-14, 1981.

34. Conference on Volterra and Functional Differential Equations, VPI & SU, Blacksburg, Virginia, June 10-13, 1981.

35. Math. Assoc. of America (Ohio Section), Lorain, Ohio, October 23-24, 1981.

36. IEEE Conference on Decision and Control, San Diego, December 16-18, 1981.

37. Symposium on Engineering Sciences and Mechanics, National Cheng Kung University, Tainan, Taiwan, December 28-31, 1981.

38. IFAC Symposium on Control of Distributed Systems, Toulouse, France, June 29 - July 2, 1982 (invited lecture and served as Vice president of Congress).

39. Workshop on Control of Distributed Parameter Systems, Vorau, Austria, July 12-14, 1982.

40. Workshop on Distributed Systems in Large Space Structures, Jet Propulsion Laboratory, Pasadena, California, July 14-16, 1982.

41. International Large Scale Systems Symposium, Virginia Beach, Virginia, October 11-13, 1982.

42. Conference on Inverse Scattering, University of Tulsa, Tulsa, Oklahoma, May 16-18, 1983.

43. SIAM National Meeting, Denver, Colorado, June 6-8, 1983.

44. American Control Conference, San Francisco, California, June 22-24, 1983.

45. Intl. Conf. on Mathematics in Biology and Medicine, Bari, Italy, July 18-22, 1983.

46. Conf. on Decision and Control, San Antonio, Texas, December 14-16, 1983.

47. 8th Annual Lecture Series in Math. Sciences (Principal Lecturer), Estimation and Control of Distributed Systems, University of Arkansas, Fayetteville, Arkansas, April 12-14, 1984.

48. Brazil, April and May, 1984 (Lecture tour including Regional Meeting, Sociedade Brasileira de Matematica Aplicade e Computational; Rio Grande du Sol Fed. Univ., Porto Alegre; Lab. de Computacao Cientifica, Rio de Janeiro).

49. NASA/ACC Workshop on Identification and Control of Flexible Space Structures, San Diego, California, June 4-6, 1984.

50. Conference on Optimal Control in Distributed Systems with Applications, Vorau, Austria, July 9-13, 1984.

51. Conference on Decision and Control, Las Vegas, California, December 12-14, 1984.

52. SEG/SIAM/SPE Conference on Mathematical and Computational Methods in Seismic Exploration and Reservoir Modeling, Houston, Texas, January 21-24, 1985.

53. Workshop on Flexible Structures and Distributed Parameter Systems, Tampa, Florida, March 4-8, 1985.

54. SIAM Minisymposium on Gradient and Finite Element Techniques in Optimal Control, Pittsburgh, June 4-8, 1985.

55. International Symposium on Variational Methods in Geosciences, Norman, Oklahoma, October 15-17, 1985.

56. Japan, November 7-21, 1985: Lectures at International Symposium on Math. Biology, Kyoto; Kyoto Institute of Technology; Osaka University.

57. Conference on Decision and Control, Fl. Lauderdale, Florida, December 11-13, 1985.

58. IFIP-TC7 Conference on Control Problems for Systems Described by Partial Differential Equations, University of Florida, Gainesville, Florida, February 3-6, 1986.

59. Principal Lecturer (short course), Workshop on Mathematical Models in Biology and Medicine, Inst. Numerical Analysis of the C.N.R., Pavia, Italy, June 23-27, 1986.

60. International Conference on Control and Identification of Distributed Systems, Vorau, Austria, July 6-12, 1986.

61. 2nd Workshop on Control of Systems Governed by Partial Differential Equations, Val David, Quebec, October 5-9, 1986.

62. 2nd Autumn Course on Mathematical Ecology, Trieste, Italy, December 8-12, 1986.

63. Eli Lilly Applied Mathematics Lectures, Rose Hulman Institute of Technology, Terre Haute, Sept. 5,6; Nov. 21, 22, 1986; April 3, 4, 1987.

64. Balomenos Lectures in Applied Mathematics, Un. New Hampshire, Durham, April 10, 1987.

65. Workshop on Applications and Algorithms for Optimal Control and Parameter Identification, Universitat Trier, West Germany, June 24-27, 1987.

66. IFIP Conference on Optimal Control of Systems Governed by Partial Differential Equations, Univ. Santiago, Santiago de Compostela, Spain, July 6-9, 1987.

67. Sixth Intl. Conference on Math. Modeling, St. Louis, Mo., August 4-7, 1987.

68. Japan: Sept. 23 - Oct. 10, 1987: Lectures at Institute of Biophysics, Kyoto University; Kyoto Institute of Technology; Osaka University and Principal Lecturer at Intl. Symp. on Modeling and Simulation of Distributed Parameter Systems, Hiroshima Inst. Tech., Hiroshima, Oct. 6-9, 1987.

69. Intl. Symp. on Math. Approaches to Environmental and Ecological Problems, Cornell University, Oct. 28-30, 1987.

70. Conference on Decision and Control, Los Angeles, Dec. 9-11, 1987.

71. COMCON Conf. on Stabilization of Flexible Structures, Montpellier, France, Dec. 11-15, 1987.

72. Workshop on Experiments and Computation in Structures, University of Wisconsin, Madison, May 15-28, 1988.

73. IFIP Conf. on Shape Optimization and Stabilization, Clermont-Ferrand, France, June 20-22, 1988.

74. INRIA, Rocquencourt, France, June 23, 28, 1988.

75. 4th Intl. Conf. on Control of Distributed Parameter Systems, Vorau, Austria, July 11-15, 1988.

76. Intl. Symposium on Numerical Solutions of PDE, VPISU, Blacksburg, VA, September 24-27, 1988.

77. Midwestern Conference on Differential Equations, Iowa State University, Ames, IA, October 28-29, 1988.

78. IEEE Conf. on Decision and Control, Austin, TX, December 7-9, 1988.

79. AMS/MAA Joint Math Meetings, Phoenix, January 9-14, 1989.

80. Distinguished Lecturer Series in Applied Mathematics, Emory University, March 20-23, 1989.

81. SIAM Conf. on Control in the 90's, San Francisco, May 17-19, 1989.

82. Intl. Conf. on Differential Equations and Applications, Retzhof, Austria, June 19-23, 1989.

83. Plenary Lecture, 5th IFAC Symp. on Control of DPS, Perpignan, France, June 26-29, 1989.

84. AMS/SIAM Summer Conf. on Inverse Problems for PDE, Arcata, CA, July 30-Aug. 4, 1989.

85. Intl. Conf. on Population Structure, University of California - Davis, September 20-22, 1989.

86. Workshop on Computational Techniques in ID and Control of Flexible Flight Structures, Lake Arrowhead, CA, November 2-4, 1989.

87. Ninth S.W. Symposium on Systems Theory, Texas Tech. University, December 9-12, 1989.

88. 28th IEEE Conf. on Decision and Control, Tampa, December 13-15, 1989.

89. Amer. Math. Society, Session on Control and Differential Equations, Louisville, KY, January 17-20, 1990.

90. Intl. Conf. on Optimization and Nonlinear Analysis, Haifa, Israel, March 21-27, 1990.

91. Distinguished Lecturer Series, Clemson University, April 2-6, 1990.

92. Los Alamos - UNM Distinguished Lecture Series, Albuquerque, NM, April 23-27, 1990.

93. Plenary Lecture, IFIP Intl. Conf. on Control of DPS, Fudan University, Shanghai, China, May 6-10, 1990.

94. Intl. Conf. on DPS Control and Applications, Vorau, Austria, July 9-13, 1990.

95. Plenary Lecture, 2nd Conf. on Computation and Control, Bozeman, MT, August 1-7, 1990.

96. Plenary Lecture, Intl. Symp. on Inverse Problems in Engineering and Science, Osaka Institute of Technology, Osaka, Japan, August 18-21, 1990.

97. Invited Lecture Series - Japan, (Kobe University, Tokyo University, National Aerospace Laboratories), August 23-29, 1990.

98. Invited Lecture - USSR Academy of Sciences; Steklov Institute, Moscow; Georgian Academy of Science, Tbilisi; September 3-8, 1990.

99. Plenary Lecture, Intl. Symp. on ID in Dynamical Systems and Inverse Problems, Suzdal, USSR, September 10-14, 1990.

100. 28th IEEE Conference on Decision and Control, Honolulu, December 5-7, 1990.

101. Distinguished Lecture Series, Center for Engineering Mathematics, University of Texas - Dallas, March 7-8, 1991.

102. International Conference on Inverse Problems: Computational Algorithms, Texas A&M University, College Station, March 10-14, 1991.

103. 11th Annual CNLS Conference: Computational Issues in Nonlinear Sciences, Center for Nonlinear Sciences, Los Alamos National Laboratories, Los Alamos, May 20-24, 1991.

104. Conference on Optimization, North Carolina State University, Raleigh, July 15-17, 1991.

105. IMACS World Congress on Applied Math and Computation, Trinity College, Dublin, Ireland, July 21-26, 1991.

106. Principal Lecturer, Workshop on Modern Computational Methods in Industrial Mathematics, Harvey Mudd College, Claremont, CA, August 15-16, 1991.

107. Tutorial Short Course, Intl. Symp. on Active Materials and Smart Structures, Alexandra, VA, November 4-7, 1991.

108. 29th IEEE Conference on Decision and Control, Brighton, England, December 11-13, 1991.

109. Fields Institute Conference on Control and Identification (June, 1992), Univ. of Waterloo.

110. AMS/SIAM Conference on Control of PDE (July, 1992), Mt. Holyoke College.

111. International Conference on Computation and Control (August, 1992), Montana State Univ.

112. International Conference on Nonlinear Analysis (August, 1992), Tampa.

113. Workshop on Flow Control, Institute of Mathematical Analysis, U. Minnesota, Nov. l6-20, 1992, Minneapolis.

114. 30th IEEE Conference on Decision and Control, Tucson, Az., Dec. 16-18, 1992.

115. SPIE Conference on Smart Materials and Structures, Albuquerque, NM, Feb. 1-4, 1993.

116. Ecole Polytechnic de Lyon, Lyon, France, March, 1993.

117. AMS Regional Meeting, Knoxville, TN, March 26-27, 1993.

118. IEEE Symp. on New Directions in Control, Chania, Crete, June 21-23, 1993.

119. Conf. on Control and Estimation of Distributed Parameter Systems: Nonlinear Phenomena, Vorau, Austria, July 18-24, 1993.

120. Intl. Symp. on Math. Theory of Networks and Systems, Regensburg, Germany, August 2-6, 1993.

121. 14th ASME Vibration and Noise Conference, Albuquerque, September 20-22, 1993.

122. Plenary Lecture, SE Atlantic Regional Conference on Diff. Eqns., UNC-W, October 15-16, 1993.

123. Ex-Students Assoc. Distinguished Scholar Lecturer, Texas Tech Univ., Lubbock, March 3-4, 1994.

124. Invited Lecture Series: Universite de Paris VI; Universite Joseph Fourier, Grenoble; Universite Versailles; March 19-31, 1994.

125. Zaborszky Distinguished Lecture Series, Washington Univ., St. Louis, April 25-27, 1994.

126. College de France and Universite de Pierre et Marie Curie, Paris VI, May 1-13, 1994; Universite de Besancon, May 6, 1994.

127. University of Manchester, England, May 9, 1994.

128. Technische Universitat Berlin, May 13-15, 1994.

129. Universitat Graz, Austria, May 15-26, 1994.

130. International Conf. on Differential Equations with Applications, Harvey Mudd College, Claremont, CA, June 1-4, 1994.

131. Japan-Russia Conference on Inverse Problems in Elasticity, Kyoto University, July 20-22, 1994.

132. Intl. Conf. on Inverse Problems in Engineering Science -94, Osaka, July 27-29, 1994.

133. Japan: Kobe University, July 25-26; Osaka Inst. Tech., July 30; Tokyo University, July 31, 1994.

134. Conf. on Computation and Control IV, Bozeman, MT, August 2-9, 1994.

135. U.S. Universities: Fall 1994; Texas Tech, Texas A&M, Drake U., Iowa State, U. Minn-Duluth, U. Washington of Seattle, HMC/Pomona/CGS, U. So. Calif.

136. IEEE Conf. on Decision and Control, Orlando, FL, Dec 13-17, 1994.

137. Spain: March 11-20, 1995; Universidad de Cantabria, March 13-14; Universidad de Oviedo (as Scientific Consultant, Program in Applied Math and Sci. Computation), March 14-18, 1995.

138. SIAM Conf. on Control and its Applications, St. Louis, April 27-29, 1995.

139. Plenary Lecturer, IEEE Mediteranean Symposium on New Directions in Control and Automation, Limassol, Cyprus, July 10-14, 1995.

140. Euromech 341 - Smart Materials and Structures, Giens, France, Sept 26-29, 1995.

141. SIAM National Meeting, Charlotte, NC, Oct 23-26, 1995.

142. ASM/TMS Materials Week '95, Cleveland, OH, Oct 31-Nov 2, 1995.

143. Institut fur Matematik, Universitat Graz, Graz, Austria, Nov 6-10, 1995.

144. Plenary Lecturer, Amer. Math Society Southeast Regional, Greensboro, NC, Nov 17-18, 1995.

145. Intl. Conf on Elasticity, Viscoelasticity and Optimal Control, Lyon, France, Dec 6-8, 1995.

146. NSF/ARPA Workshop on Thin Films, IMA, Univ. Minnesota, Feb. 1-3, 1996.

147. National Academy Sciences AFOSR Review, Washington, DC, Feb 13-14, 1996.

148. Conf. on Modeling and Computation for Applications in Science and Engineering, Northwestern University, May 3-4, 1996.

149. Université de Franche-Comte, Besancon, France, May 17-24, 1996.

150. Intl. Symp. Math Theory of Network and Systems -MTNS96 - St. Louis, MO, June 24-27, 1996.

151. 2nd World Congress on Nonlinear Analysis, Athens, Greece, July 10-14, 1996.

152. Conf. on Control of Distributed Parameter Systems, Vorau, Austria, July 15-19, 1996.

153. SIAM National Meeting, Kansas City, July 22-26, 1996.

154. Conference on Computation and Control V, Montana State University, Bozeman, July 20-August 2, 1996.

155. National Research Council Chairman's Conference, Washington DC, Oct. 11-13, 1996.

156. Intl. Seminar on Parameter Estimation and Optimal Design, Osaka Inst. Tech., Osaka, Japan, Dec. 9-10, 1996.

157. IEEE Conference on Decision and Control, Kobe, Japan, Dec. 11-13, 1996.

158. ME/AE Distinguished Lecture Series, U. Maryland, Feb. 20, 1997.

159. IFIP Conf. on Optimal Control, U. Florida, Feb. 27-Mar. 1, 1997.

160. SPIE Conf. on Smart Structures and Materials, San Diego, Mar. 2-6, 1997.

161. Rencontres Mathematiques de Rouen: Homogeneisation, Solutions Renormalisees et Solutions de Viscosite, Rouen, France, April 22-23, 1997.

162. Ecole Polytechnic, Palaisieau, France, April 30, 1997.

163. Intl. Conference on PDE and Control, CIRM, Marseille-Luminy, France, June 16-20, 1997.

164. SIAM National Meeting, Palo Alto, CA, July 14-18, 1997.

165. Plenary Lecture, 8th International Congress on Biomathematics, Panama City, Panama, August 25-29, 1997.

166. 3rd ARO Workshop on Smart Structures, VPISU, Blacksburg, August 28-30, 1997.

167. Plenary Lecture, XX Brazilian National Congress, Gramado, Brazil, September 8-12, 1997.

168. Symp. on Vibrations, Controls and Signals, II Panamerican Workshop on Applied and Computational Mathematics, Gramado, Brazil, September 10-12, 1997.

169. Workshop on Optimal Design and Control, Crystal City, VA, Sept. 1-3, 1997.

170. 1997 UNH Tech Lecture Series, U. New Hampshire, Oct. 13-15, 1997.

171. C.G. Johnson Colloquium Series, Worcester Polytech, Oct. 16, 1997.

172. IEEE Conf. on Decision and Control, San Diego, Dec. 10-13, 1997.

173. AMS/MAA Annual Meeting, Baltimore, MD, Jan. 7-10, 1998.

174. Plenary Lecture, Intl. Conf. on Inverse Problems, U. Phillipines, Manila, Feb. 23-27, 1998.

175. Intl. Workshop on Control Fluids and Structures, Paris, March 9-13, 1998.

176. Invited Lecture Series, Control Theory and Applications, Centre Henri Poincaré, Paris, March 16 - April 3, 1998.

177. College de France Colloquium, April 3, 1998.

178. 1998 School of Science Distinguished Alumnus Colloquium, Purdue University, West Lafayette, IN, April 23, 1998.

179. Plenary Lecture, 4^{th} SIAM Conference on Control and Its Applications, Jacksonville, FL, May 7-9, 1998.

180. Tutorial Workshop and Keynote Lecture, International Conference on Optimization Techniques and Applications, Perth, Australia, June 29-July 3, 1998.

181. Conference on Computation and Control VI, Montana State University, Bozeman, MT, August 4-7, 1998.

182. ARO Damping Workshop, VPISU, Blacksburg, VA, October 19-22, 1998.

183. Intl. Conf. on Semigroups of Operators: Theory and Applications, Newport Beach, CA, December 14-18, 1998.

184. Institut for Mathematical Systems, Universitat Groningen, The Netherlands, January 6-9, 1999.

185. SPIE Symposium on Smart Structures and Materials, Newport Beach, CA, March 1-4, 1999.

186. AMS Western Regional Conference, Las Vegas, NV, May 9-11, 1999.

187. AIAA/CEAS Aeroacoustics Conference, Bellvue, WA, May 10-12, 1999.

188. NSF Workshop on Active Flow Control, University of California, San Diego, May 31-June 1, 1999.

189. SIAM Math-In-Industry Workshop, Harvey Mudd College, Claremont, CA, June 16-19, 1999.

190. Workshop on Control, System Theory and Mathematical Modeling, Gadjah Mada University, Yogyakarta, Indonesia, July 19-23, 1999.

191. International Conference on Math and Its Application, SE Asian Math Society, Gadja Mada University, Yogyakarta, Indonesia, July 26-29, 1999.

192. Intl. Workshop on Systems with Hysteresis, Weierstrass Institute for Applied Analysis and Stochastics, Berlin, September 20-24, 1999.

193. SIAM Conf. in Industrial Applied Mathematics, Raleigh, NC, Oct. 10-12, 1999.

194. Conf. on Advances in Control of Nonlinear Distributed Parameter Systems, Texas A&M University, College Station, TX, Oct. 22-23, 1999.

195. Invited Survey Lecture, SPIE Symposium on Smart Materials and Structures, Newport Beach, CA, March 5-9, 2000.

196. Trends in Dynamical Systems, Institute of Mathematics, Univesität Graz, Graz, Austria, March 16-18, 2000.

197. Plenary Lecture, SIAM-SEAS Annual Conference, Univ.-Georgia, Athens, GA, March 24-25, 2000.

198. AMS Symposium on Mathematical Models in the Biological and Physical Sciences, Univ. Louisiana-Lafayette, April 14-16, 2000.

199. Workshop on Principal Orthogonal Decomposition and its Applications, Graz, Austria, May 25-27, 2000.

200. Conference on Optimal Control of Complex Dynamical Structure, Mathematiches Forschungsinstitut Oberwolfach, Germany, June 4-10, 2000.

201. Plenary Lecture, 2nd European Conference on Structural Control, Ecole Nationale des Ponts et Chaussess, Champs-sur-Marne, France, July 3-6, 2000.

202. Conference on Computation and Control VII, Bozeman, MT, August 1-4, 2000.

203. International Workshop on Hysteresis, Univ. Ill.-Chicago, August 28-30, 2000.

204. SIAM Conf. on Computational Science and Engineering, Washington, DC, Sept. 21-24, 2000.

205. SIAM NW Regional Mathematics in Industry Workshop, Univ.-Washington, Seattle, WA, Oct. 12-14, 2000.

206. Hong Kong University of Science and Technology, Hong Kong, Dec. 7, 2000.

207. Invited Lecture Series, Chinese University of Hong Kong, Shatin, N.T., Dec. 8-15, 2000.

208. Symposium on PDE's in Biology, Joint Math Meetings, New Orleans, LA, Jan. 10-11, 2001.

209. SPIE Conference on Smart Structures and Materials, Newport Beach, CA, March 4-8, 2001.

210. Industrial Lecture Series, Univ. Wisconsin, Milwaukee, March 12-14, 2001.

211. Laboratoire d'Analyse Numerique, Univ. Paris VI, March 30, April 5,6, 2001.

212. Pi Mu Epsilon Banquet, Raleigh, NC, April 26, 2001.

213. Intl. Symp. on Electromagnetics X, Tokyo, Japan, May 13-16, 2001.

214. Plenary Lecture, Electromagnetic Nondestructive Evaluation 2001, Kobe, Japan, May 17-19, 2001.

215. SIAM Conf. on Dynamical Systems, Snowbird, Utah, May 21-24, 2001.

216. SIAM National Meeting (2 Invited Lectures), San Diego, CA, July 8-14, 2001.

217. 8th Int'l Conf. on Control of DPS, Graz, Austria, July 16-20, 2001.

218. DARPA Workshop on Uncertainty, Annapolis, MD, August 27-28, 2001.

219. SECAM (Southeast Conference on Applied Mathematics), Raleigh, NC, November 9-11, 2001.

220. IEEE Conf. on Decision and Control, Orlando, FL, December 3-7, 2001.

221. Plenary Lecture, Intl. Conf. on Inverse Problems, City University of Hong Kong, January 9-12, 2002.

222. Workshop on Electromagnetics, San Antonio, TX, January 17-19, 2002.

223. Entelos, Menlo Park, CA, February 15, 2002.

224. SPIE Conf. on Smart Materials, San Diego, CA, February 18-21, 2002.

225. Workshop on Computational Modeling in Science and Engineering, MCNC, RTP, March 25-26, 2002.

226. Plenary Lecture, South African Society for Numerical and Applied Math, 26^{th} Annual Conf., Stellenbosch, S.A., April 3-5, 2002.

227. AFOSR Future Directions in Control, Arlington, VA, April 26-27, 2002.

228. Reid Prize Lecture, SIAM National Meeting, Philadelphia, PA, July 9, 2002.

229. Invited Symposium Lectures (2), [Bioterrorism; Electromagnetics], SIAM National Meeting, July 11, 2002.

230. ICASE 30^{th} Anniversary Symposium, Newport News, VA, July 25, 2002.

231. MTNS, Notre Dame University, South Bend, IN, August 14-16, 2002.

232. Intl. Conf. on Computational Methods for Inverse Problems, Strobl, Austria, August 26-30, 2002.

233. Tutorials on Inverse Problems, SAMSI Inverse Problems Conference, RTP, NC, September 21-24, 2002.

234. ICAM Workshop on Control and Identification, VPISU, Blacksburg, VA, September 27-28, 2002.

235. Intl. Symposium on New Directions in Mathematical Systems Theory and Optimization, Royal Institute of Tech (KTH), Stockholm, Sweden, November 15-16, 2002.

236. Semester on Mathematical Control and Systems Theory, Institut Mittag-Leffler, Royal Swedish Academy of Sciences, Djursholm, Sweden, January 14-22, 2003.

237. Laboratoire Jacques-Louis Lions, Universite Paris 6, Paris, April 28, 2003.

238. Plenary Lecture, Intl. Conf. MAFELAP, Uxbridge, June 21-24, 2003.

239. Intl. Workshop on Viscoelastic Constitutive Modelling and Computation, Brunel University, June 25, 2003.

240. Invited Symposium Lectures (2) (Viscoelasticity; Industrial Math), ICIAM, Sidney, Australia, July 7-11, 2003.

241. Computation, Control and Biological Systems VIII, Montana State University, Bozeman, MT, July 29-August 1, 2003.

242. Joint Statistics Meetings, San Francisco, CA, August 3-7, 2003.

243. Plenary Lecture, Mathematics for Industry Workshop, 47th European Study Group with Industry, Univ. of Southern Denmark, Sonderborg, Denmark, August 24-29, 2003.

244. AFOSR Electromagnetics Workshop, San Antonio, January 8-10, 2004.

245. Distinguished Lecture Series in Mathematical Biology, U. Michigan, January 14-15, 2004.

246. Laboratoire Jacque-Louis Lions, Univ. Paris VI, March 1, 2004; Universite Jean Monnet, St. Etienne, March 4, 2004.

247. SPIE Conference on Control Systems, San Diego, March 15-19, 2004.

248. Universite Henri Poincare, Nancy, France, May 2, 2004.

249. Primary Lecturer, MAA PREP Series on "Mathematics Meets Biology: Epidemics, Data Fitting, and Chaos", University of Louisiana-Lafayette, May 26-29, 2004.

250. Plenary Lecture, Intl. Conference on Inverse Problems, Fethiye, Turkey, June 6-12, 2004.

251. Plenary Lecture, World Congress on Nonlinear Analysis, Orlando, FL, June 30-July 7, 2004.

252. Intl. Conf. on Research Trends in PDE Modeling and Computation, Brown University, November 7-8, 2004.

253. Distinguished Lecture Series, Clemson University, December 5-7, 2004.

254. AFOSR Electromagnetics Workshop, San Antonio, January 5-7, 2005.

255. Southwest Consortium for Theoretical, Computational and Mathematical Biology, Arizona State University, Tempe, January 14-15, 2005.

256. Plenary Lecture, International Conference on Approximation Methods for Design and Control, Universidad Tecnologica Nacional, Buenos Aires, Argentina, March 7-9, 2005.

257. Primary Lecturer, MAA PREP Short Course on "Mathematics Meets Biology", U. Louisiana-Lafayette, May 25-27, 2005.

258. Plenary Lecture, International Conference on Scientific Computing, Nanjing Normal University, Nanjing, China, June 4-8, 2005.

259. Plenary Lecture, Workshop on Control of Infinite Dimensional Systems, University of Waterloo, Waterloo, Canada, July 25-29, 2005.

260. Lecture series on Inverse Problems, Mathematical and Theoretical Biology Institute, Los Alamos National Laboratory, July 29-August 3, 2005.

261. Plenary Lecture, Workshop on Mathematics as an Enabling Science, VPISU, Blacksburg, VA, Sept 30-Oct 2, 2005.

262. AFRL/AFOSR Electromagnetics Workshop, San Antonio, January 11-13, 2006.

263. MAA Minicourse: "Mathematical and Statistical Modeling in Biology: Competitive Exclusion, Coexistence, Estimation and Control", Joint Math Meetings, San Antonio, January 12-15, 2006.

264. Workshop on Mathematical Models in Biology and Medicine, Tempe, AZ, February 3-4, 2006.

265. Invited Thematic Lecture, International Congress on the Applications of Mathematics-ICAM 2006, Center for Mathematical Modeling, University of Chile, Santiago, Chile, March 13-17, 2006.

266. Plenary Lecture, A. P. Calderon Seminar on Inverse Problems and Applications, 25th Anniversary of the Laboratorio Nacional de Computacao Cientifica, Rio de Janeiro, Brazil, March 21-24, 2006.

267. Invited Lecture, 3rd Intl. Conference on Inverse Problems: Modeling and Simulation Oludeniz, Fethiye, Turkey May 29-June 2, 2006.

268. Plenary Lecture, MAFELAP 2006, Brunel University, Uxbridge, England, June 13-16,2006.

269. London Mathematical Society Distinguished Lecturer, Brunel, Reading, and Cardiff Universities, June 19-23, 2006.

270. Plenary Lecturer, 6th IFAC Workshop on Time-Delay Systems L'Aquila, Italy, July 10-12, 2006.

271. Lecture series on Mathematical and Statistical Methods in Inverse Problems, Mathematical and Theoretical Biology Institute, Arizona State University, Tempe, AZ, July 24-25, 2006.

272. Invited Lecture, 3rd International Conference on Neural, Parallel and Scientific Computation, Atlanta, GA, August 9-12, 2006.

273. Plenary Lecture, 8th Franco-Romanian Congres on Applied Mathematics, Chambery, France, August 28-September 1, 2006.

274. Invited Lecture, Journee en Memoire du J.P. Kernevez, Universite de Technologie de Compiegne, Compiegne, France, October 2, 2006.

275. Plenary Lecture, 6th Red Raider Conference, Texas Tech University, Lubbock, TX, November 9-10, 2006.

276. AFRL/AFOSR Electromagnetics Workshop, San Antonio, January 9-11, 2007.

277. 2nd International Conference on Approximation Methods for Design and Control, Buenos Aires, Argentina, March 7-9, 2007.

278. Plenary Lecture, Atlantic Coast Conference on Mathematics in the Life and Biological Sciences, VPI, Blacksburg, VA May 3-5, 2007

279. Plenary Lecture, Intl Conference on Computational and Mathematical Methods in Science and Engineering, CMMSE, Chicago, IL, June 20-23, 2007

280. Invited Principal Lecturer, 6th Congress of Romanian Mathematicians, Bucharest, June 28-July 4,2007

281. Principal Lecturer (6 lectures), Biomedical Modeling and Cardiovascular-Respiratory Control: Theory and Practice Summer School and Workshop: A Marie Curie Training Event, Schloss Seggau, Leibnitz, Austria, July 22-28, 2007.

282. Plenary Lecture, Annual Meeting, Society of Mathematical Biology, San Jose, CA, July 30-August 3, 2007.

283. Plenary Lecture, 4th Danish Symposium on Applied Analysis, Copenhagen, August 16-18, 2007.

284. Plenary Lecture, Mathematical Modeling and Analysis of Populations in Biological Systems, Univ. of Arizona, Tucson, October 5-7, 2007.

285. Plenary Lecture, International Symposium on Mathematical Modeling and Computational Methods in Science and Engineering, Kobe, Japan, October 22-25, 2007.

286. "Frontiers in Environmental Sciences" Lecturer, NIEHS, RTP, December 7, 2007.

287. The Karen A. Ames Distinguished Lecturer, University of Alabama, Huntsville, February 8, 2008.

288. Plenary Lecture, Workshop on Modeling and Identification of Distributed Parameter Systems for Cell Population Dynamics, Leuven, Belgium, March 12-14, 2008.

289. Invited Lecture, 4th Intl. Conference on Inverse Problems: Modeling and Simulation Oludeniz, Fethiye, Turkey, May 26-30, 2008.

290. Invited Lecture, 10emes Recontres Mathematiques de Rouen (RMR) 2008, Rouen, France, June 25-27, 2008.

291. Keynote Lecture, World Congress on Nonlinear Analysis (WCNA2008), Orlando, FL, July 2-9, 2008.

292. Lecture series on "Inverse Problems: Mathematical and Statistical Methods", Mathematical and Theoretical Biology Institute, Arizona State University, Tempe, AZ, July 15-16, 2008.

293. Invited Lecture, Stochastic Differential Equation Models with Applications to the Insulin-Glucose System and Neuronal Modelling Summer School and Workshop: A Marie Curie Training Event, Middelfart, Denmark, August 12-16, 2008.

294. Invited Lecture, Workshop on Inverse and Partial Information Problems: Methodology and Applications, (October 27-31, 2008),(Special Semester on Stochastics with Emphasis on Finance Linz, September-December, 2008), RICAM, Linz, Austria.

295. Invited Lecture, Intl. Conf. on Approximation Methods for Design and Control, Buenos Aires, Argentina, March 9-11, 2009.

296. Invited Lecture, SIAM Conference on Control and Applications, CT09, Denver, CO, July 6-9, 2009.

297. Invited Lectures on "Mathematical and Statistical Methods for Inverse Problems", Mathematical and Theoretical Biology Institute, Arizona State University, Tempe, AZ, July 20-21, 2009.

298. Invited Lecture, International Conference on Mathematical Methods and Modeling in the Life Sciences and Biomedicine, Yeditepe University, Istanbul, Turkey, August 17-21, 2009.

299. Invited Lecture, A Celebration of the Field of Systems and Control, Royal Institute of Technology (KTH), Stockholm, Sweden, September 9-11, 2009.

300. Invited Lectures (5), 2009 EC Summer School on Parameter Estimation in Physiological Models, Event 3 of the EC Marie Curie Conferences series on "Mathematical Modeling of Human Physiological Systems with Biomedical Application," Island of Lapari, Sicily, Italy, September 13-26, 2009.

301. Invited Lecture, International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, U. Alabama, Huntsville, October 9-11, 2009.

302. Plenary Lecture, SEARCDE 2009, Mercer University, Macon GA, October 16-17, 2009.

303. Plenary Lecture, International Workshop on Biomathematics and Biomechanics, Tozeur, Tunisia, November 20-23, 2009.

304. Plenary Lecture, 2nd International Congress on Applied, Computational and Industrial Mathematics, Rosario, Argentina, December 14-16, 2009.

305. Invited Lecture, SIAM-SEAS, Raleigh, March 20-21, 2010

306. Invited Lecture, Hong Kong Baptist University, April 22, 2010.

307. Invited Lecture, Workshop on Inverse Problems, Chinese University Hong Kong, April 23-24, 2010.

308. Plenary Lecture, International Conference on Inverse Problems, Wuhan, China, April 26-29, 2010.

309. Invited Lecture, SIAM Conf on Emerging Topics in Dynamic Systems and Partial Differential Equations, Barcelona, Spain, May 31-June 4, 2010.

310. Invited Lectures on Mathematical and Statistical Modeling in Biology, Mathematical and Theoretical Biology Institute, Arizona State University, Tempe, AZ, June 28-30, 2010.

311. Invited Lecture, Thirty-Seventh Annual Review of Progress in Quantitative Nondestructive Evaluation, San Diego, CA, July 19-23, 2010.

312. Invited Lecture, Workshop in Memory of Chris Byrnes, Texas Tech, Lubbock, Texas, September 10-11, 2010.

313. Invited Lecture, 20th Anniversary Celebration of CAMS, University of Southern California, Los Angeles, September 24, 2010.

314. Invited Lecture, KTH Industrial Applied Math Review, Stockholm, Sweden, October 4-6, 2010.

315. Invited Lectures, Universite Paris VI and INRIA, Paris and Le Chesnay, France, October 11-12, 2010.

316. invited Lecture, Math Biosciences Institute, Ohio State U, Columbus, OH, October 18, 2010.

317. Invited Lecture, L.D. Berkovitz Memorial Celebration, Purdue University, West Lafayette, IN, October 25-26, 2010.

318. Keynote Plenary Lecture, International Conference on Inverse Problems, City University of Hong Kong, Hong Kong, China, December 13-17, 2010.

319. Invited Lecture Series on *Propagation of Uncertainty in Dynamical Systems*, Mathematics and Biology: Young Investigators International Workshop, Universite de Rouen, Rouen, France, April 4-6, 2011.

320. Invited Short Course, Inverse Problems and Optimal Control for PDEs, University of Warwick, Warwick, England, May, 23-27, 2011.

321. Invited Lecture, Conf on Control of DPS, Wuppertal, Germany, July 18-22, 2011.

322. Invited Lecture, SIAM Conference on Control Theory, Baltimore, MD, July 25-27, 2011

323. Invited Lecture, Istanbul Conf on Mathematical Methods and Modeling in Life Sciences and Biomedicine 2011, Sile, Istanbul, Turkey, August 15-19, 2011.

324. Invited Lecture, International Workshop on Control and Optimization of PDEs, Mariatrost, Graz, Austria, October 10-14, 2011

325. Plenary Lecture, SSS2011, 43^{rd} Intl. Symposium on Stochastic Systems Theory and Its Applications, Bianca, Otsu Port and Ritsumeikan University, Shiga, Japan, October 28-29, 2011.

326. Invited Lecture, SiMCRT2011, Intl. Workshop on Simulation and Modeling Related to Computational Science and Robotics Technology, Kobe University, Kobe, Japan, November 1-3, 2011.

327. Invited Lecture, International Workshop on Antibiotic-Resistant Infections: Math Modeling, Transmission Dynamics and Control, University of Miami, Coral Gables, December 9-11, 2011.

328. Plenary Lecture, International Conference on Mathematical and Theoretical Biology, Pune, India, January 23-27, 2012.

329. Plenary Lecture, SIAM-SEAS, University of Alabama-Huntsville, March 24-25, 2012.

330. Invited Lecture, Society Mathematical Biology Annual Conference, July 25-28, 2012, Knoxville, TN.

331. Invited Math Modeling Lectures, UPF CFSE Modeling and Experimental Workshop, Univ. Pompeu Fabra, September 10-14, 2012, Barcelona, SP.

332. Plenary Lecture, International Workshop on Trends on Optimization and Control, Karl-Franzen Universitat, Graz, Austria, September 21-22, 2012.

333. Invited Distinguished Lecturer in Mathematics and Statistics, (3 lectures) Texas Tech University, Lubbock, TX, October 18-20, 2012.

334. Distinguished Lecture Series, (2 lectures) Department of Mathematics and Statistics, Missouri University of Science and Technology, Rolla, MO, October 21-23, 2012.

335. Invited Lecture, Lloyd Roeling Conference, Univ Louisiana-Lafayette, Lafayette, LA, November 2-4, 2012.

336. Colloquium Lecture Series, Dept Applied Math and Computational Sciences, U. Notre Dame, South Bend, IN, December 2-4, 2012.

337. Invited Lecture, Institute of Medicine, U. Sao Paulo, Sao Paulo, BR, February 28-March 1, 2013.

338. Colloquium Lecture Series, Dept Applied Math, U. Colorado, Boulder, CO, March 6-8, 2013.

339. Invited Lecture, Oregon State University, Corvallis, OR, April 6-8, 2013.

340. Invited Lectures, Universite Paris VI, April 22-23, 2013.

341. Invited Lecture, INRIA, Rocqencourt, France, April 30, 2013.

342. Invited Lecture, Conference on Differential Equations, UCF, Orlano, FL, May 9-11, 2013.

343. Invited Symposium, MAFELAP, Brunel University, Uxbridge, UK, June 10-14, 2013.

344. Invited Lecture Series, NIMBioS Workshop on Inverse Problems, U. Tennessee, Knoxville, June 23-25, 2013.

345. Inverse Problem Lectures, Wright-Patterson AFB, Dayton, OH, June 27-28, 2013.

346. Invited Lecture, SIAM Conference on Control and Its Applications, San Diego, CA, July 8-10, 2013.

347. Invited Presentation, AFOSR Conference on Dynamics and Control, Arlington, VA, August 5-7, 2013.

348. Invited Lecture, IFAC Workshop on Control of DPS, Paris, France, September 25-27, 2013.

349. Invited Lecture Series, East Tennessee State University, Johnson City, TN, October 24-25, 2013.

350. Invited Keynote Lecture, 7th International Conference on Inverse Problems: Modeling and Simulation, Fethyie, Turkey, May 26-31, 2014.

351. Invited Lectures (2), American Control Conference, Portland, OR, June 3-7, 2014.

352. Invited Lecture, 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Universidad Autonoma de Madrid, Madrid, Spain, July 7-11, 2014.

353. Invited Lectures (2), Joint JSMB/SMB Conference, Osaka, Japan, July 28-August 1, 2014.

354. Invited Lectures (2), SIAM Conference on Life Sciences, Charlotte, NC, August 4-7, 2014.

355. Invited Lecture, NSF Workshop in Inverse Problems in Biology, NCSU, Raleigh, August 8-11, 2014.

356. Invited Lecture Series, Uncertainty Quantification Summer School, Univ. Southern California, Los Angeles, August 11-13 2014.

357. Invited lecture, DARPA/NIH/AFOSR Strategic Workshop on the Convergence of Physical Sciences for Biomedical Applications: Phase Transition and Network Dynamics in Living and Non-Living Systems, Arlington, VA, August 27-28, 2014.

358. Plenary Lecture, International Conference on Inverse Problems and Optimal Control, Chinese University of Hong Kong, Hong Kong, December 4-6, 2014.

359. Invited Lecture, AMS Southeastern Sectional Meeting, University of Alabama, Huntsville, AL, March 27-29, 2015.

360. Invited Lectures, Swedish University of Agricultural Sciences, Uppsala, Sweden, April 21,22, 2015

361. Invited Plenary Lecture, V MACI(V Congreso de Matemtica Aplicada, Computacional e Industrial) 2015, Tandil, Argentina, May 3-6, 2015.

362. Invited Lecture, Applied Inverse Problems 2015, Helsinki, Finland, May 25-29, 2015.

363. Invited Lectures, 27th IFIP TC7 Conference on System Modelling and Optimization, Sophia Antipolis, France, June 29-July 3, 2015.

364. Invited Lecture, SIAM Conference on Control and Its Applications, Paris, France, July 8-10, 2015

365. Plenary Lecture, 17th International Symposium on Applied Electromagnetics and Mechanics (ISEM2015), Awaji-Island, Hyogo, Kobe, Japan, Sept 15-18, 2015.

366. Plenary Lecture, 35th Southeastern Atlantic Regional Conference on Differential (SEARCDE2015), UNG-G, Greensboro, NC, Oct 10-11, 2015.

Service to Profession

Reviewer for Mathematical Reviews, December 1967 - December 1974.
SIAM J. Control & Optimization

Editorial Board, July 1972 - December 1978
Managing Editor, January 1979 - December 1981
Editor, January 1982 - December 1985
Managing Editor, January 1986 - December 1988
Editor, January 1989 - December 1991

Consultant Board, NSF - Clemson University Project, 1975 - 1979,
"Alternatives to Graduate Education in the Math. Sciences"
Editorial Board, Quarterly of Applied Mathematics, August 1977 -
Editorial Board, J. Mathematical Biology, January 1980 - December, 1999.
Editorial Board, International J. Mathematical and Computer Modeling, January 1980 -December, 2012.
Editorial Board, Matematica Aplicada e Computational, May 1984 -December 2006.
Editorial Board, Applied Mathematics Letters, January 1987 -
Editorial Board, Control: Theory and Advanced Technology, January 1988 - December, 1994.
Editorial Board, J. Math. Systems, Estimation and Control, January 1990 - December, 1999.
Editorial Board, Discrete and Continuous Dynamical Systems, September 1994 - December, 2002; Series B, January 2000-December, 2004.
Editorial Board, ESAIM, Contrôle, Optimisation et Calcul des Variations, 1995 -2002.
Editorial Board, J. Inverse and Ill-Posed Problems, July 1996 -
Editorial Board, Inverse Problems, January 1997 - December, 2004; International Editorial Advisory Board, January 2005 -December, 2012.
Editorial Board, Intl. J. of Computational and Numerical Analysis and Applications, 2000 -
Editorial Board, Nonlinear Analysis: Real World Applications, January, 2000– December, 2010.
Editorial Board, Intl. J. of Pure and Applied Mathematics, 2001 -
Editorial Board, SIAM J Uncertainty Quantification, 2012-
Editorial Board, Eurasian Journal of Mathematical and Computer Applications (EJMCA), January 2013-
Series Editor, Advances in Applied Mathematics, CRC Press/Taylor&Francis, February 2015-
Editorial Board, Communications in Applied Analysis, September, 2002 - December, 2007.
Mathematical Sciences Editor, J. Intelligent Material Systems and Structures, January 1992 - Dec. 1996; Associate Editor, January, 1997 -December, 2003.

International Advisory Editor, Arabian J. for Science and Engineering, 2003-2007; Editor, AJSE-Mathematics, 2007-
Advisory Editor, Mathematical Biosciences and Engineering, January, 2004-
Editorial Board, International J. for Rapid Publication in Mathematics, 2004-
AMS-SIAM Committee on Mathematics in the Life Sciences, January 1, 1981 - December 31, 1984
Vice President - Publications, SIAM, January 1, 1982 - December 30, 1985
Founding Editor, SIAM Book Series Frontiers in Applied Mathematics

Managing Editor, January 1983 - August 1985
Editorial Board, January 1983 - December, 1989.
Editor-in-Chief, January, 1998 - December, 2005.

Editorial Board, SIAM Series Advances in Design and Control, January, 1997 – December, 2005.
Editorial Board, ASA-SIAM Series on Statistics and Applied Probability, December, 2002–December, 2008.
Founding Editorial Board, Advances in Applied Mathematics and Mechanics (AAMM), October, 2008–
International Editorial Advisory Board, Inverse Problems in Science and Engineering, January, 2009–December, 2012. Editorial Advisory Board, July, 2014–

Have served on International Program Committee for numerous meetings and conferences; most recent include 3rd IFAC Symposium on Control of Distributed Parameter Systems (Vice-Chairman), Toulouse, France, June 29 - July 2, 1982; Workshop on Control of Large Flexible Structures, Tampa, Florida, March 4-8, 1985; 4th IFAC Symposium on Control of Distributed Parameter Systems (Chairman), Los Angeles, June 30 - July 3, 1986; Seminar on Approximation and Optimization, Havana, Cuba, January 12-16, 1987; IMACS/IFAC International Symposium on Distributed Parameter systems (Co-Chairman), Hiroshima, Japan, October 6-9, 1987, numerous additional international program committees since 1987.

Service to Brown University

Graduate Prelim Committee 1968-69 (Applied Mathematics)
Graduate Admissions Committee 1968-72 (Applied Mathematics)
Departmental Graduate Administrator 1969-72 (Applied Mathematics)
Graduate School Council 1970-72
Advisor, ScB. program in Applied Math-Biomedical Sciences, 1971 -
Advisor, AB program in Applied Mathematics, 1976-78
Search Committee for Faculty Position (Biomedical Sciences) 1976-78
Development of Vector I in Commonwealth Project, 1977 -
Executive Committee (Division of Applied Mathematics) 1981 - 82
Director, Lefschetz Center for Dynamical Systems, September - December 1981

Director, Center for Control Sciences, July 1986- July 1989

Honors and Awards

LeRoy B. Martin, Jr. Distinguished Professor, N.C. State University, November, 2014.
Elected Fellow, AAAS, December, 2010.
2010 Lord Robert May Best Paper Prize (best paper in 2007 and 2008 volumes of J. Biological Dynamics) (jointly authored with M. Davidian, S. Hu, G.M. Kepler and E. Rosenberg), awarded July, 2010.
Elected Fellow, SIAM, April, 2009.
2008 Alumni Association Outstanding Research Award, NCSU, March, 2008.
IEEE Lifetime Fellow, January, 2007–
President-Elect, Sigma Xi Research Society, 2006-2007; President, 2007-2008.
Turkish Governor's Medal of Honor Award (for outstanding research contributions), Intl. Conf. on Inverse Problems: Modeling and Simulation, Fethiye, Turkey, June 6, 2004.
"Bioterrorism: Mathematical Modeling Applications in Homeland Security", edited by H.T. Banks and Carlos Castillo-Chavez was chosen an alternate selection in the Scientific American Book Club's May 2004 cycle.
Chair, SIAM Activity Group on Control, 2002-2004.
W.T. & Idalia Reid Prize in Applied Mathematics, SIAM $50th$ Anniversary Meeting, Philadelphia, PA, July 9, 2002.
Best Paper Award, 158th Meeting, Rubber Division of American Chemical Society, Cincinnati, OH, October, 2000 (with O.H. Yeoh and G.A. Pinter).
Alumni Distinguished Graduate Professor, N.C. State University, May, 2000-
Fellow, Institute of Physics, 1999 -
Chair, SIAM Board of Trustees; elected, 1999; re-elected, 2000; re-elected, 2001; re-elected, 2002.
Distinguished Alumni Award, Purdue University, April, 1998.
SIAM Board of Trustees, January 1997 - 1999; re-elected, 2000 - 2002.
1996 IEEE-CSS Control Systems Technology Award, Kobe, Japan, Dec. 1996
1995-96 NCSU Alumni Association Outstanding Research Award
1995 ASME Adaptive Structures "Best Paper Award in Structural Dynamics and Control"; presented at the 1996 Adaptive Structures Forum, Salt Lake City, Utah, April, 1996 (with R.C. Smith and R. Silcox).
AFOSR Research Highlight, January, 1996.
IEEE Fellow, 1994 -
Distinguished Scholarly Achievement Award, N.C. State, 1992
University Professor, N.C. State, January 1992 -
AFOSR Research Achievement, 1990
J. Clarence Karcher Distinguished Lecturer Medal, 1985

Associate Member: The Institute for Computer Applications in Science and Engineering, 1985 -
Professeur Honoraire, Universite de Compiegne, France, 1977
NDEA and NSF Fellowships
Phi Kappa Phi, Blue Key, Pi Mu Epsilon, Sigma XI

Current Professional Societies

SIAM (SIAG on Control, SIAG on Life Sciences), IEEE, Institute of Physics, Sigma Xi, Society for Math Biology

Past Research Interests

1. Numerical methods for control problems: spline and other approximations.
2. Estimation techniques using parallel architectures and array processes.
3. Numerical methods for nonlinear systems control problems.
4. Estimation and control in distributed systems in: flexible structures; population dispersal; elasticity, acoustics.
5. Identification procedures for systems with delays.

Teaching (Selected Courses)

1978-79	AM/Phy. 15, 16; AM 227A; Bio. 117, 212; AM 193, 194, 291, 292
1979-80	AM/Phy, 15, 16; AM 228; AM 291, 292
1980-81	AM/Bio. 107; AM 227, Bio. 212; AM 228; AM 291, 292
1981-82	AM/Phy. 15, 16; AM/Bio. 107; Bio. 212; AM 291-292
1984-85	AM/Bio. 107; AM 227, 228; AM 194; AM/Bio. 222
1985-86	AM 227, 228; AM 36
1986-87	AM/BIO 107; AM 36, AM 228, AM 222
1989-90 (at USC)	Ma 585 Topics in Control Theory
1990-91	Ma 685 Advanced Topics in Control
1991-92	Ma 425 Differential Equations for Engineers and Scientists
1992-93 (at NCSU)	Ma 341 Differential Equations
1993-94	Ma 531 Control and Systems
	Ma 581 Topics in the Applications of Mathematics
1994-95,1995-96	Ma 648 Applied Functional Analysis
	Ma 581 Modeling and Analysis of Physical and Biological Systems
1996-97	Ma 581 Topics in Computational Control
	Ma 573,574 Mathematical and Experimental
	Modeling of Physical Processes I,II
1997-98	Ma 648 Applied Functional Analysis
	Ma 573 Mathematical and Experimental Modeling of Physical Processes I
1998-99	Ma 648 Applied Functional Analysis
	Ma 797b Introduction to Computational Electromagnetics
1999-2000	Ma 797t Advanced Electromagnetics
	Ma 574 Mathematical and Experimental Modeling of Physical Processes II
2000-2001	Ma 573 Mathematical and Experimental Modeling of Physical Processes I (NC-REN TV)
	Ma 797I Statistical Methods for Inverse Problems
2001-2002	Ma 573 Mathematical and Experimental Modeling of Physical Processes I (NC-REN TV to Elizabeth City State Univ.; NCA&T; UNC-G; UNC-W)
2002-2003	Ma/St 810Q Statistical Methods in Inverse Problems
	Ma/St 810R Statistical Methods in Inverse Problems
2003-2004	Ma 573 Mathematical and Experimental Modeling of Physical Processes I (NC-REN TV to UNC-G; UNC-W)
	Ma 797B Special Topics in Applied Math
2004-2005	Ma 716 Advanced Functional Analysis
	Ma 810B Special Topics in Inverse Problems
2005-2006	Ma 797C Special Topics in Stochastic Modeling

2006-2007	Ma 797B Special Topics in Statistical and Mathematical Modeling
	Ma 797V Special Topics in Viral Modeling
2007-2008	Ma 341 Intro to Ordinary Differential Equations
2008-2009	Ma 573 Mathematical and Experimental Modeling of Physical Processes I
	Ma 797E Special Topics in Elasticity and Electromagnetics
2009-2010	Ma/St 810 Mathematical and Statistical Aspects of Inverse Problems
	Ma 791 Applied Functional Analysis
2010-2011	Ma 791-001 Applied Functional Analysis II
	Ma 793-003 Special Topics in Delay Differential Equations
2011-2012	Ma 341H Intro to Ordinary Differential Equations
	Ma 493/Bio 495 Special Topics in Math/Biology
2012-2013	Ma 797 Inverse Problems with Uncertainty
	Ma493/Bio 495 Math Modeling in Biology
2013-2014	Ma 493-003 Differential Equations for the Life Sciences
2014-2015	Ma 341H Intro to Ordinary Differential Equations

Honors Theses Directed

1. Carter, C.A., "Glucose Homeostatic Models", May 1972.
2. Kimura, R.E., "Numerical Methods for Approximating the Kinetics of Cascade Enzyme Systems", May 1972.
3. Almquist, K., "An Optimal Control Model in Radiation Biology", May 1974.
4. Zinberg, D., "Numerical Methods for Stiff Systems Arising in Enzyme Cascade Models", May 1974.
5. Thrift, P., "A Computer Program for the Approximation of Solutions to Optimal Control Problems Governed by Time-Lag Systems", May 1975.
6. Mills, E., "Use of the STAR ST-100 Array Processor in a Numerical Optimization Method", May 1985.
7. Askew, A., "Size Structured Population Models", May 1988.
8. Nardini, John, "Effects of Reparameterization on the Inverse Problem: Asymptotic Ellipsoids in Statistical Inverse Problems", May, 2013.

Graduate Theses Directed

1. Latina, M.R., "Some Aspects of Mathematical Control Problems with Time-Dependent Control Constraints", MS Thesis, Brown University, 1970 (Professor, Worcester Polytech).

2. Kent, G.A., "Optimal Control of Functional Differential Equations of Neutral Type", PhD Thesis, Brown University, 1971 (Lt. Commander, U.S. Navy).

3. Groome, G.M., Jr., "Identification of Dynamical Systems", PhD Thesis, Brown University, 1972 (Management, IBM Corp.).

4. Tsukazan, T., "Existence of Optimal Controls for Problems Involving Systems with Delays", PhD Thesis, Brown University, 1974 (Univ. Rio del Sol, Brazil).

5. Reber, D., "Approximation and Optimal Control of Linear Hereditary Systems", PhD Thesis, Brown University, 1978 (private business).

6. Mahaffy, J., "Models for Protein Synthesis", PhD Thesis, Brown University, 1979 (Professor, San Diego State Univ.).

7. Rosen, G., "A Discrete Approximation Framework for Hereditary Systems", PhD Thesis, Brown University, 1980 (Professor, Univ. So. California).

8. Daniel Lamm, P., "Spline-Based Approximation Methods for the Identification and Control of Nonlinear Functional Differential Equations", PhD Thesis, Brown University, 1981 (Professor, Michigan State Univ.).

9. Rockey, S., "Discrete Methods of State Approximation, Parameter Identification and Optimal Control for Hereditary Systems", PhD Thesis, Brown University, 1981 (Law Firm: Ecklund, Rockey and Stratton, Seattle, WA).

10. Crowley, J., "Numerical Methods of Parameter Identification for Problems Arising in Elasticity", PhD Thesis, Brown University, 1982 (Managing Director, SIAM).

11. Murphy, K.A., "A Spline-Based Approximation Method for Inverse Problems for a Hyperbolic System Including Unknown Boundary Parameters", PhD Thesis, Brown University, 1983 (Associate Professor, Univ. North Carolina -CH).

12. Zia, L., "Parameter Estimation Techniques for Two-Dimensional Transport Equations with Application to Models of Insect Dispersal", PhD Thesis, Brown University, 1985 (Associate Professor, Univ. New Hampshire).

13. Fitzpatrick, B., "Statistical methods in parameter identification and model selection", PhD Thesis, Brown University, 1988 (Partner and Staff Scientist, Tempest Technologies, Burbank, CA and C.J. Wallen Professor of Mathematics, Loyola Marymount University).

14. Wang, C., "Approximation methods for linear quadratic regulator problems with nonautonomous periodic parabolic systems", PhD Thesis, Brown University, 1988 (Associate Professor, Univ. So. California).

15. Wade, G. "Tau methods for parabolic equations in inverse problems", PhD Thesis, Brown University, 1989 (Associate Professor, Bowling Green State Univ.).

16. Rebnord, D. "Parameter estimation for two-dimensional grid structures", PhD Thesis, Brown University, 1989 (Senior Financial Engineer, Nations Bank, Chicago).

17. Wang, Y. "Damping modeling and parameter estimation in Timoshenko beams", PhD Thesis, Brown University, 1991 (Staff Scientist, Xontech Corp., Burbank, CA).

18. Fakhroo, F. "Legendre-Tau approximation for an active noise control problem", PhD Thesis, Brown University, 1991 (Associate Professor, Naval Postgraduate School).

19. Smith, Christian, "Modeling and analysis of coupled torsion and bending in flexible structures", PhD Thesis, University of Southern California, 1993 (Research Engineer, CSA Engineering, Palo Alto, CA).

20. Zhang, Yue, "Mathematical formulation of vibrations of a composite curved beam structure: Aluminum core material with viscoelastic layers, constraining layers and piezoceramic patches", Ph.D Thesis, North Carolina State University, 1997 (Staff Scientist, Michelin North America Research Center, Greenville, S.C.).

21. Musante, Cynthia, "A distributed parameter model to describe the hepatic processing of 2,3,7,8-Tetrachloradibenzo-p-dioxin", Ph.D. Thesis, North Carolina State University, 1998 (Staff Scientist, Entelos, Palo Alto, CA).

22. del Rosario, Ric, "Computational methods for feedback control in structural systems", Ph.D. Thesis, North Carolina State University, 1998 (Assistant Professor, University of the Phillipines, Manila).

23. Buksas, Michael, "Modeling, analysis and implementation of forward and inverse problems in one dimensional electromagnetic scattering with differential and hysteretic polarization models", Ph.D. Thesis, North Carolina State University, 1998 (Research Scientist, Los Alamos National Lab, Los Alamos, NM).

24. Choi, Melissa Goodhart, "Analysis and implementation of a model for radio-frequency bonding of adhesives in composites", Ph.D. Thesis, North Carolina State University, 1999 (Staff Scientist, MIT Lincoln Labs).

25. Potter, Laura K., "Physiologically based pharmacokinetic models for the systemic transport of trichloroethylene", Ph.D. Thesis, North Carolina State University, 2001 (Staff Scientist, EPA, Durham, NC).

26. Joyner, Michele L., "An application of a reduced order computational methodology for eddy current based nondestructive evaluation techniques", North Carolina State University, 2001 (Staff Scientist, MIT Lincoln Labs).

27. Bihari, Kathleen L., "Analysis of thermal conductivity in composite adhesives", Ph.D. Thesis, North Carolina State University, 2001 (Staff Scientist, MIT Lincoln Labs).

28. Ditter, Emily E., "Representation of nasal airways using proper orthogonal decomposition", MS Thesis, North Carolina State University, 2001 (Staff Scientist, John Hopkins Applied Physics Lab).

29. Raye, Julie K., "An electromagnetic interrogation technique utilizing pressure-dependent polarization", Ph.D. Thesis, North Carolina State University, 2002 (Assistant Professor, Virginia Commonwealth University, Richmond, VA).

30. Bortz, David M., "Modeling analysis and estimation of an in vitro HIV infection using functional differential equations" Ph.D. Thesis, North Carolina State University, 2002 (Assistant Professor, University of Michigan, Ann Arbor, MI).

31. Smith, Cassandra J., "Adapting a passive computational model for sound field absorption by acoustic arrays into an active model" MS Thesis, North Carolina State University, 2003 (Staff Scientist, MIT Lincoln Labs).

32. Gibson, Nathan Louis, " Terhertz based electromagnetic interrogation techniques for damage detection" Ph.D. Thesis, North Carolina State University, 2004 (NIA/CRSC Postdoctoral Fellow, National Institute of Aerospace, Hampton, VA).

33. Dick, Lara K., "Prediction of life history traits in invertebrate species exposed to pesticides", MS Thesis, North Carolina State University, May, 2005 (Broughton High School, Raleigh, NC).

34. Adams, Brian Michael, "Non-parametric parameter estimation and clinical data fitting with a model of HIV infection", Ph.D. Thesis, North Carolina State University, July, 2005 (Sandia National Labs, Albuquerque, NM)

35. Hood, Jeffrey Braidon, "Molecular-based models for viscoelasticity of polymers", Ph.D. Thesis, North Carolina State University, July, 2005 (Assist. Prof., Midwestern State University, Wichita Falls, TX).

36. Luke, Nicholas Stephen, "Modeling shear wave propagation in biotissue: An internal variable approach to dissipation", Ph.D. Thesis, North Carolina State University, July, 2006 (Environmental Protection Agency, RTP, NC)

37. Grove, Sarah Lynn, "Optimization problems in the presence of uncertainty", Ph.D. Thesis, North Carolina State University, September, 2007 (Air Force Research Laboratory, Rome, NY)

38. Joyner, Sarah Lynn, "Dynamic models for insect mortality due to exposure to insecticides", MS Thesis, North Carolina State University, March, 2008 (Consulting analyst, Accenture, Charlotte, NC)

39. Samuels, John R., "Inverse problems and post analysis techniques for a stenosis-driven acoustic wave propagation model", Ph.D. Thesis, North Carolina State University, June, 2008 (Soneticom, Melbourne, FL)

40. Davis, Jimena Lamanda , "Uncertainty quantification in the estimation of probability distributions on parameters in size-structured population models", Ph.D. Thesis, North Carolina State University, July, 2008 (National Center for Computational Toxicology, US EPA, RTP, NC)

41. Ernstberger, Stacey Leigh, "Sensitivity methods for dynamical systems", Ph.D. Thesis, North Carolina State University, July, 2008 (LaGrange College, LaGrange, GA)

42. Ortiz Nieves, Angela R., "Modeling the transmission of Vancomycin-resistant enterococcus (VRE) in hospitals: a case study", Ph.D. Thesis, Arizona State University, January, 2010 (American Express, Phoenix, AZ)

43. Bliss, Karen M., "Modeling of Red Blood Cell Dynamics in Patients with Chronic Kidney Disease", Ph.D. Thesis, North Carolina State University, May, 2011 (USMA, West Point, NY)

44. Holm, Kathleen J., "Comparison of Optimal Design Methods in Inverse Problems", Ph.D. Thesis, North Carolina State University, July, 2011 (EPA, RTP, NC)

45. Criner, Amanda Keck, "Nondestructive Evaluation of Porous Materials", Ph.D. Thesis, North Carolina State University, August, 2011 (AFRL/WPAFB/Univ Dayton, Dayton, OH)

46. Robbins, Danielle, "Sensitivity Functions for Delay Differential Equation Models", Ph.D. Thesis, North Carolina State University, August, 2011 (Arizona State University, Phoenix, AZ)

47. Wendelsdorf, Katherine V., "Models of the Mucosal Inflammatory and Regulatory Immune Pathways: The Role of Host Response in Microbial Persistence and Pathogenesis", Ph.D. Thesis, VPISU, November, 2011 (NIH, Bethesda, MD)

48. Thompson, William Clayton, "Partial Differential Equation Modeling of Flow Cytometry Data from CFSE-based Proliferation Assays", Ph.D. Thesis, North Carolina State University, December, 2011 (NCSU and ICREA Infection Biology Lab, Univ. Pompeu Fabra, Barcelona, Spain). Now at Pfizer, Boston.

49. Kenz, Zachery Roman, "Stenosis-Driven Acoustic Wave Propagation in Biotissue: Modeling and the Inverse Problem", Ph.D. Thesis , North Carolina State University, May, 2013 (MIT Lincoln Labs).

50. Rehm, Keri Leigh, "Multiscale Modeling of Plant Growth Combining Enzyme Kinetics and Whole Plant Dynamics and Experimental Design applications", Ph.D. Thesis , North Carolina State University, August, 2013 (NCSU/Syngenta, Inc).

51. Kapraun, Dustin F., "Cell Proliferation Models, CFSE-Based Flow Cytometry Data, and Quantication of Uncertainty ", Ph.D. Thesis , North Carolina State University, July, 2014 (US EPA, RTP, NC).

Postdoctorals Directed

A partial list (with current employment) includes:

1. J. Burns, 1973-1974 (Hatcher Chair in Mathematics, VPISU);
2. F. Colonius, 1977-1978 (Univ. of Augsburg);
3. K.Kunisch, 1979-1980 (Professor, Univ Graz, Austria);
4. K. Ito, 1981-1984 (Professor, N.C. State Univ.);
5. G. Propst, 1985-1987 (Associate Professor, Universitat Graz, Austria);
6. F. Kojima, 1985-1988 (Professor, Kobe University, Japan);
7. R. Fabiano, 1986-1989 (Professor, Univ. N.C.,Greensboro);
8. H. Tran, 1986-1989 (Professor, N.C. State Univ.);
9. S. Keeling, 1987-1988 (Visiting Scientist, Univ. Graz, Austria);
10. D. Woodward, 1988-1989 (SMU);
11. R. Miller, 1989-1992 (Staff Scientist, Beam Tech. Inc.);
12. S. Kang, 1989-1992 (Chosun University, Korea);
13. K. Morris, 1989-1990 (Professor, University of Waterloo);
14. R. Smith, 1990-1993 (Professor, N.C. State Univ.);
15. W. Fang, 1990-1992 (Associate Professor, West Virginia Univ.);
16. B. King, 1992-1993 (Professor, Oregan State University);

17. K. Black, 1992-1994 (Associate Professor, Cooper Union);
18. M. Demetriou 1993-1996 (Associate Professor, WPI);
19. N. Lybeck, 1995-1997 (Staff Scientist, Applied Math Inc.);
20. G. Kepler, 1995-2000 (SAMSI Associate Fellow);
21. P. Emeric, 1996-1998 (GE Systems);
22. H. V. Ly, 1996-1999 (Associate Professor, California State - Fullerton);
23. I. Groselj, 1997-1998 (Germany);
24. D. Rubio, 1997-1999 (University of Buenos Aires Hospital, Argentina);
25. G. Pinter, 1997-2000 (Associate Professor, University of Wisconsin - Milwaukee);
26. S. Wynne, 1999-2002 (CRSC Research Scientist);
27. B. Browning, 2000-2002 (Staff Scientist, Glaxo-Smith-Kline);
28. J. Bardsley, 2002-2003 (SAMSI Fellow) (Assist. Prof., University of Montana);
29. Y. Ma, 2002-2004 (SAMSI/CRSC Fellow) (Asst Prof of Statistics, Texas A and M University);
30. V. Bokil, 2003-2006 (Assist. Professor, Oregon State University)
31. H.D. Kwon, 2003-2004 (Asst Prof, Inha University, Korea);
32. H.K. Nguyen, 2004-2006 (SAMSI/CRSC Fellow) (Staff Scientist, Center for Naval Analysis);
33. N. Gibson, 2004-2006 (NASA-NIA Fellow) (Asst Prof, Oregon State University);
34. Shuhua Hu, 2005-2009 (Research Asst Prof, NCSU);
35. Sava Dediu, 2005-2008 (SAMSI/CRSC Fellow) (Scientist, Campbell & Co.);
36. Ariel Cintron-Arias, 2006-2009 (SAMSI/CRSC Fellow) (Assist Prof, East Tennessee State University);
37. Karyn L. Sutton, 2008-2011 (Assist Prof, University of Louisiana-Lafayette);
38. W. Clayton Thompson, 2012-2013 (Research Scientist, Pfizer, Boston, MA);
39. Kevin Flores, 2012-2015 (Assist Prof, Personalized Medicine and Mathematics, NCSU)

40. Carola Kruse, 2013-2014 (Siemens Corp, Lyons, France)
41. Kidist Bekele-Maxwell, April, 2015-
42. Rebecca Everett, June, 2015-

Professional References

Dr. L.D. Berkovitz	Division of Mathematical Sciences Purdue University West Lafayette, IN 47907 (PhD Thesis Advisor)
Professor F. Kappel	Chair in Mathematics Institut fur Mathematik Universitat Graz A-8010 Graz, Austria
Dr. W. Fleming	Division of Applied Mathematics Department of Mathematics Brown University Providence, RI 02912
Dr. M.Q. Jacobs	AFOSR/NM 801 North Randolph Street Room 732 Arlington, VA 22203-1977
Dr. Daniel Inman	G.R. Goodson Professor of Mechanical Engineering Director, Center for Intelligent Material Systems and Structures Dept. of Mechanical Engineering 310 NEB, Mail Code 0261 Virginia Tech Blacksburg, VA 24061
Dr. John A. Burns	Hatcher Professor of Mathematics Director, Interdisciplinary Center for Applied Mathematics Virginia Tech 540 McBryde Hall Blacksburg, VA 24061-0123