

CURRICULUM VITAE

Gangaram S. Ladde

Address: Department of Mathematics and Statistics
University of South Florida
4202 East Fowler Avenue, PHY
Tampa, Florida 33620-5700 U.S.A.
E-mail: gladde@cas.usf.edu

Telephone: (813) 974-2664 - Office
(813) 531-9214 - Home

Date of Birth: March 9, 1940

Marital Status: Married, three children: Anil, Jay and Nathan

Citizenship Status: U. S. Citizen

EDUCATION

Ph.D. Mathematics, University of Rhode Island, Kingston, Rhode Island, 1972

M.Sc. (First Class First) in Mathematics, Marathwada University, Aurangabad, India, 1965

B.Sc. (First Class) in Chemistry, Mathematics, and Physics, Marathwada University, Aurangabad, India, 1963

PROFESSIONAL EXPERIENCE

Academic

2007-Present **Professor** of Mathematics and Statistics
University of South Florida

1980-2007 **Professor** of Mathematics
The University of Texas at Arlington

1976-1980 **Associate Professor** of Mathematics (tenured)
The State University of New York at Potsdam

1973-1976 **Assistant Professor** of Mathematics
The State University of New York at Potsdam

1971-1973 **Instructor** of Mathematics
University of Rhode Island

1967-1971 **Teaching Assistant** in Mathematics
University of Rhode Island

1965-1967 **Research Fellow** in Mathematics

Marathwada University

Administrative

1983-1987 **Graduate Advisor**
 Graduate Programs in Mathematics
 The University of Texas at Arlington

AWARDS AND GRANTS

| | |
|---------------------------|--|
| Summer 2007-2010 | US Army Office (with A. Korzeniowski) Title: Modeling of Network Dynamics Under Markovian and Structural Perturbations Amount: \$225,009 Funding Period: June 2007 to August 31, 2009 |
| Summer 2003 | National Science Foundation, Wayne State University, Travel Grant |
| Fall 1997-2002 | National Science Foundation, Tennessee State University, NSF Prime Grant No. HRD-9706268 |
| Spring 1994-1997 | Army Research Office, Tennessee State University, U. S. Army Grant No. DAAH04-94-G-0001 |
| Spring 1993-1996 | Army Research Office, Tennessee State University, U. S. Army Grant No. DAAH04-93-G-0054 |
| Fall 1992-Fall 1993 | Army Research Office, Tennessee State University, U. S. Army Research Grant No. DAAH04-93-G-0024. |
| Fall 1990-Summer 1992 | Army Research Office, Jarvis Christian College, U. S. Army Research Grant No. DAALO3-90-G-0180. |
| Fall 1989-Summer 1992 | Army Research Office, UT at Pan American, U. S. Army Research Grant No. DAAL03-89-G-0107. |
| Summer 1987 | Research Associate, School of Engineering, Santa Clara University, Santa Clara, California. |
| Fall 1984 - Fall 1986 | Army Research Office-Bishop College, U. S. Army Research Grant No. DAAG29-84-G-0060. |
| Summer 1981 - Summer 1984 | Army Research Office-Bishop College, U.S. Army Research Grant No. DAAG29-81-G-0008. |
| Summer 1981 | Research Associate, School of Engineering, University of Santa Clara, Santa Clara, California, Department of Energy Grant. |
| Summer 1980 | U. S. Army Research Support. |
| Summer 1979 | U. S. Army Research Support. |
| Fall 1978 | Faculty Research Fellowship, the Research Foundation of State University of New York, Albany, New York. |
| Summer 1978 | U. S. Army Research Support. |
| Fall 1977 | Faculty Research Fellowship, The Research Foundation of State University of New York, Albany, New York. |
| Fall 1976 | Faculty Research Fellowship, The Research Foundation of State University of New York, Albany, New York. |
| Fall 1975 | Faculty Research Fellowship, The Research Foundation of State University of New York, Albany, New York. |
| Fall 1974 | Faculty Research Fellowship, The Research Foundation of State University of New York, Albany, New York. |
| Summer 1974 | Research Associate, School of Engineering, University of Santa Clara, Santa Clara, California, NASA Grant. |
| Fall 1973 | Faculty Research Fellowship, The Research Foundation of State University of New York, Albany, New York. |
| 1972-1973 | CNR Fellowship, Italian National Research Council, Piazzale delle Science, |

7-00100 Roma, Italy.

PROFESSIONAL ORGANIZATIONS

Senior Member, IEEE
 Life Member, American Mathematical Society
 Life Member, Sigma Xi
 Life Member, Indian Mathematical Society
 Patron (Life), Marathwada Mathematical Society
 Elected Member of Academy of Nonlinear Sciences

PROFESSIONAL ACTIVITIES

Founder and Joint Editor (1983-Present): *Journal of Stochastic Analysis and Applications*

Member of the Editorial Board:

Dynamic Systems and Applications
Communications in Applied Analysis
International Journal of Applied Mathematics
Nonlinear Analysis: Hybrid Systems
Neural, Parallel and Scientific Computations
Nonlinear Studies

Reviewer for *Mathematical Reviews*

Reviewed: 70 papers (Russian); 2 books (Russian)
 40 papers (Other); 1 book (Other)

Referee

Ecology
Journal of Mathematical Biology
Journal of Mathematical Physics
Journal of Mathematical and Physical Science
Journal of Mathematical Analysis and Applications
Journal of Nonlinear Analysis: Theory, Methods, and Applications
Journal of Theoretical Biology
IEEE Trans. Auto. Control
Proc. of IFAC
Mathematics and Computers in Simulation
Mathematical Biosciences
Large Scale Systems

INVITED LECTURES

Seminars

1. School of Engineering, University of Santa Clara, Santa Clara, California: June 17-August 31, 1974, "Stochastic Differential Equations and Applications."
2. Department of Mathematics, The University of Texas at Arlington, Arlington, Texas: November 17-21, 1975, "Stochastic Differential Equations and Brownian Motion."

3. Department of Biology, Clarkson College of Technology, Potsdam, New York: February 10 and 17, 1978, "Stability vs. Complexity."
4. Instituto di Mathematica, l'Universita di Roma, Roma, Italy: July 4-August 3, 1978, "Stability of Random Differential Equations with Applications."
5. School of Engineering, University of Santa Clara, Santa Clara, California: May 20-July 10, 1981, "Stochastic Differential Systems."
6. Department of Mathematics and Statistics, Annamalai University, Annamalainager - 608002, India: December 17-20, 1981, "Stochastic Processes and Applications."
7. Department of Mathematics and Statistics, Marathwada University, Aurangabad - 431004, India: December 26-29, 1981, "Stochastic Analysis of Compressible Gas Lubricated Slider Bearing Problem."
8. Department of Electrical Engineering, University of Houston - Central Campus, Houston, Texas: September 20-22, 1983, "Large-Scale Stochastic Systems."
9. Department of Mathematics and Statistics, Marathwada University Aurangabad - 431004, India: December 11-16, 1983, "Stochastic Processes with Applications."
10. Department of Electrical Engineering, University of Houston - Central Campus, Houston, Texas: August 6-8, 1984, "Large-Scale Stochastic Systems."
11. Department of Electrical Engineering, University of Houston - Central Campus, Houston, Texas: August 13-16, 1985, "Large-Scale Stochastic Systems."
12. Department of Mathematics and Computer Science, Atlanta University, Atlanta, Georgia: March 15-18, 1986, "Stochastic Dynamic Systems."
13. Department of Electrical Engineering, University of Houston-Central Campus, Houston, Texas: September 26-29, 1986, "Large-Scale Stochastic Systems."
14. Department of Mathematics, Huazhong (Central China) University of Science and Technology, Wuhan, Hubei, The People's Republic of China: May 6-19, 1987, "Near-Optimum Regulators for Stochastic Singularly Perturbed Systems."
15. Department of Mathematics, Nanjing University, Nanjing, Jiangsu, The People's Republic of China: May 19-26, 1987, "Stochastic Systems Theory in Biomathematics and Management Sciences."
16. Department of Mathematics, Peking University, Beijing, The People's Republic of China: May 26-29, 1987, "Oscillations Caused by Delays."
17. School of Engineering, Santa Clara University, Santa Clara, California: July 13-August 14, 1987, "Stochastic Difference Inequalities and Applications."
18. Department of Mathematics, University of Oulu, Oulu, Finland: July 8-18, 1988, "Large-Scale Stochastic Systems."
19. Department of Mathematics, Morehouse College and Atlanta University, Atlanta, Georgia: August 20-25, 1989, "A Study of Stochastic Systems."
20. Department of Mechanical Engineering, Saga University, Saga, Japan: August 15-17, 1990, "Recent Control Theories in Applied Mathematics."
21. Department of Electrical Engineering, Oita University, Oita, Japan: August 18-21, 1990, "Multiplex Control Systems."
22. Department of Statistics and Modelling Science, University of Strathclyde, Glasgow, United Kingdom: July 10-23, 2000, \square Stochastic Systems Modelling in Biological and Engineering Sciences \square
23. Department of Mathematics, Indian Institute of Technology, Powai, Bombay, India: January 9-11, 2001, "The robust stability of distributed parameter control systems".
24. Department of Mathematics, Indian Institute of Technology at Delhi, New Delhi-110 016, India: December 18-20, 2001, (i) "Dynamic Processes under Random Environmental Perturbations" and (ii) Dynamic Processes with Past-memory"
25. Department of Mathematical Sciences, N. E. S. Science College, Nanded-431 605, Maharashtra State, India: January 2-3, 2002, "Dynamic Processes in Biological, physical and Social Sciences with Past-Memory".
26. Department of Mathematics, Indian Institute of Technology at Madras, Chennai-600 036, Tamil Nadu State, India: December 24-26, 2002, "Stochastic Modelling of Inflation-Unemployment Processes".
27. Department of Mathematical Sciences, N. E. S. Science College, Nanded-431 605, Maharashtra State, India: January 3, 2003, "Dynamic Processes in Social Sciences with Random Perturbations".
28. Department of Mathematical, Goa University, Panji, India: December 13, 2005: "Hereditary and Stochastic

- Versus Ordinary Non-hereditary”
29. Department of Mathematics, Mahatma Basweshawar Mahavidyala at Latur-413 512, Maharashtra State, India: December 27, 2005: "A Few Illustrations in Competitive Processes in Biological, Physical and Social Sciences”
 31. Department of Mathematics, Indian Institute of Technology at Bombay, Powai, India: December 29, 2005: "Variational Comparison Theorem: Stochastic Approximations of Dynamic Processes"
 32. Department of Mathematics, Morehouse College, Atlanta, Georgia, April 25-27, 2007: Mathematics Colloquium: Dansby Guest Lecture .

Colloquiums

1. Department of Mathematics, Memphis State University, Memphis, Tennessee.
2. Department of Electrical and Computer Engineering, Clarkson College of Technology, Potsdam.
3. Graduate School of Biomedical Sciences, The University of Texas Health Science Center at Dallas. (Two visits).
4. Department of Mathematics, University of Missouri-Rolla.
5. Department of Mathematics, Oklahoma State University, Stillwater, Oklahoma.
6. Department of Experimental Therapeutics, Roswell Park Memorial Institute, Buffalo, New York.
7. Center for Applied Mathematics, Cornell University, Ithaca, New York.
8. Istituto di Analisi Matematica, University Delgi di Studi di Bari, 70121 Bari, Italy.
9. Istituto di Matematico, Universita di Napoli, 80134 Napoli, Italy.
10. Istituto per le Applicazioni del Calcolo, Consiglio Nazionale Delle Ricerche, 00161 Roma, Italy.
11. Department of Mathematics, The University of Texas at Arlington, Texas.
12. Department of Mathematics, Southern Methodist University, Dallas.
13. Department of Mathematics, The State University of California at Fullerton, Fullerton.
14. Department of Mathematics, People's Science College at Nanded, Nanded, Maharashtra State, India.
15. Lal Bahadur Shastri Mahavidyalaya, Dharmabad, Maharashtra State, India. Professional visits: December 1981 and 1983, January 2001.
16. Department of Mathematics, Indian Institute of Technology at Kanpur, Kanpur, India.
17. Centre for Atmospheric and Fluids Sciences, Indian Institute of Technology at Delhi, New Delhi-11016, India. Professional visits: December 1981 and 1983.
18. The South Oak Cliff Ninth Grade Center, Dallas Independent School District, Dallas, Texas.
19. Lake Worth High School, Lake Worth, Texas.
20. S. B. College, Aurangabad, India.
21. Department of Physics and Computations, Atlanta University, Atlanta, Georgia.
22. Department of Mathematics, University of Louisville, Louisville, Kentucky.
23. Office of Naval Research, Arlington, Virginia.
24. Division of Mathematical Sciences, Jarvis Christian College, Hawkins, Texas.
25. Department of Systems Engineering, Kobe University, Kobe, Japan.
26. Division of Mathematical Sciences, Jarvis Christian College, Hawkins, Texas.
27. Department of Mathematics, The University of Southwestern Louisiana, Lafayette, Louisiana.
28. High School at Palsa, Nanded, Maharashtra State, India: December 29, 2000.
29. High School at Jalkot, Latur, Maharashtra State, India: December 30, 2000.
30. Jai Jawan Jai Kisan Junior College at Kavalgaon, Nanded, Maharashtra State, India: January 3, 2001.
31. DSM College at Parbhani, Parbhani, Maharashtra State, India: January 8, 2001
32. Dr. Babasaheb Ambedkar Marathwada University, Aurangabad-431 004, India: December 27, 2001.
33. Department of Mathematics, Mahatma Basweshawar Mahavidyala. Latur-413 512, Maharashtra State, India: January 1, 2002.
34. Department of Mathematics, Indian Institute of Technology, Powai, Bombay, India: January 7, 2002.
35. Department of Mathematics: Statistics Program, University of South Florida, Tampa, Florida: May 20, 2005.
36. Department of Mathematics, Shahu Mahavidyala. Latur-413 512, Maharashtra State, India: January 3, 2007.
37. Industrial & Management Systems Engineering Department, University of

- South Florida, Tampa, Florida: April 2007.
38. Department of Mathematics and Statistics, University of South Florida, Tampa, Florida: October 2007.

Conference Lectures

1. Special Session on "Nonlinear Problems in Differential and Integral Equations," American Mathematical Society Meeting, New York City, New York: April, 1974.
2. Special Session on "Applicable Differential Equations," American Mathematical Society Meeting, New York City, New York: April, 1976.
3. The International Conference on "Nonlinear Systems and Applications," Arlington, Texas: July, 1976.
4. The Initiation Ceremony of New York Phi Chapter of Pu Mu Epsilon at Potsdam, New York: October, 1976.
5. Mathematics Club at SUC-Potsdam, Potsdam, New York: October, 1976.
6. The International Conference on "Applied Nonlinear Analysis," Arlington, Texas: April, 1978.
7. Middle School Mathematical Instructional Seminar at J. L. Long Middle School, Dallas, Texas: November, 1979.
8. Mathematics Personnel Development, Northeast Sub-District, Lakewood School, Dallas, Texas: February, 1980.
9. Research Conference on "Differential Equations and Applications to Ecology Epidemics and Population Problems," Claremont, California: January, 1981.
10. An International Conference on "Nonlinear Analysis and Differential Equations" at the Indian Institute of Technology-Madras, Madras-600 036, India: December, 1981.
11. The Vth International Conference on "Trends in Theory and Practice of Nonlinear Differential Equations," Arlington, Texas: June, 1982.
12. The 10th IMACS World Congress on "Systems Simulation and Scientific Computation," Montreal, Canada: August, 1982.
13. An Interdisciplinary Workshop at the Bishop College, Dallas: December 1982.
14. VIIIth International Conference on "Stochastic Processes and Their Applications and Vth Annual Conference of Indian Society for Theory of Probability and Its Applications" at Banaras Hindu University, Varnasi-221005, India: December, 1983.
15. Twenty-third Annual Allerton Conference on Communication, Control, and Computing, Monticello, Illinois: October, 1985.
16. A Conference on "30 Years of Modern Optimal Control," The University of Rhode Island, Kingston, Rhode Island: June, 1988.
17. The 12th IMACS World Congress on "Scientific Computation," Paris, France: July, 1988.
18. Fifteenth NAFEO/DOD Annual Conference, Washington, D.C.: March 28-30, 1990, Panelist for NAFEO/DOD Educational Seminar.
19. Second International Conference on "Integral Methods in Science and Engineering (IMSE-90)," Arlington, Texas: May 1990.
20. An International Symposium on "Functional Differential Equations and Related Topics," Kyoto, Japan: August 30-September 2, 1990.
21. Sixth International Conference on "General Inequalities," Oberwolfach, Germany: December 9-15, 1990.
22. Workshop on "Numerical Probabilities" in Luminy, Marseille, France: March 18-22, 1991.
23. An International Conference on "The Theory and Applications of Differential Equations," Edinburg, Texas: May 15-18, 1991.
24. The Ninth Army Conference on "Applied Mathematics," Minneapolis, Minnesota: June 18-21, 1991.
25. The Mini-symposium on "Weak and Strong Convergence and Applications to Stochastic Systems" at the "Second International Conference on Industrial and applied Mathematics," Washington, D.C.: July 8-12, 1991.
26. Special session on "Stability and Control", American Mathematical society Annual Meeting, Baltimore, Maryland: January 8-11, 1992.
27. A Chautauqua in Applied Mathematics, Atlanta, Georgia: March 4-6, 1992.
28. The Tenth Army Conference on, "Applied Mathematics and Computing," West Point, New York: June 16-19, 1992.

29. The First World Congress on, "Nonlinear Analysts," Tampa, Florida: August 18-27, 1992.
30. The First International Conference on, "Dynamic Systems and Applications," Atlanta, Georgia: May 26-29, 1993.
31. The Eleventh Army Conference on, "Applied Mathematics and Computing," Pittsburgh, Pennsylvania: June 8-11, 1993.
32. The first International Conference on, "Difference Equations and Applications", Trinity University, San Antonio, Texas: May 24-28, 1994.
33. Special Session on, "Stochastic Systems and Applications", American Mathematical Society Annual Meeting, San Francisco, California: January 4-7, 1995.
34. The Second International Conference on, "Dynamic systems and Applications", Morehouse College, Atlanta, Georgia: May 24-27, 1995.
35. The First International Conference on, "Neural, Parallel and Scientific Computation", Morehouse College, Atlanta, Georgia: May 28-31, 1995.
36. Special Session on \square Stochastic Differential Equations and Applications \square American Mathematical Society Annual Meeting, Orlando, Florida: January 10-13, 1996.
37. Next Program Meeting "Recruiting Mathematics Majors", The American Mathematical Society, Orlando, Florida: January 13, 1996.
38. Special Session on \square Asymptotic Behavior of Difference Equations with Applications \square Southeastern American Mathematical Society meeting, Baton Rouge, Louisiana: April 19-21, 1996.
39. The International Conference on, \square Dynamical Systems and Differential Equations \square Southwest Missouri State University, Springfield, Missouri: May 29-June 1, 1996.
40. The International Conference on, \square Dynamical Systems and Applications \square Morehouse College, Atlanta, Georgia: May 26-29, 1999.
41. Special Session on, \square Nonlinear Differential Equations and their Applications \square American Mathematical Society Meeting, Lafayette, Louisiana: April 14-16, 2000.
42. Tenth Inverse Problems in Engineering Seminar, The University of Texas at Arlington, Arlington, Texas: June 5-6, 2000.
43. Third World Congress of Nonlinear Analysts, The University of Catania, Catania, Sicily, Italy: July 19-26, 2000.
44. Eleventh International Colloquium on \square Differential Equations \square in Plovdiv, Bulgaria: August 18-23, 2000.
45. The 66th Annual Conference of the Indian Mathematical Society, Aurangabad, Maharashtra, India: December 19-22, 2000.
46. The International Conference on, "Nonlinear Systems, Modeling, Simulation and Applications", N.E.S. Science College, Nanded, Maharashtra, India: December 26-29, 2000, the Keynote Speaker of the Conference.
47. The International Conference on "Dynamics of Continuous, Discrete, and Impulsive Systems", the University of Western Ontario, London, Ontario, Canada: July 26-31, 2001.
48. The International Conference on, "Current Trends in Differential Equations", Indian Institute of Technology, Kanpur-208-016, India: December 15-17, 2001.
49. Monthly Invited Lecture Series on, "Development in Graduate Level Mathematics", Marathwada Mathematical Society, Aurangabad-431 005, Maharashtra State, India: December 21, 2001.
50. 23rd Annual Conference of Maharashtra Mathematics Teachers Association at Nanded, Maharashtra State, India: December 22-23, 2001.
51. Special Session on, "Hybrid Systems", American Mathematical Society Annual Meeting, San Diego, California, January 6-9, 2002.
52. The Fourth International Conference on, "Nonlinear Problems in Aviation and Aerospace", Florida Institute of Technology, Melbourne, Florida: May 15-17, 2002.
53. The Second International Conference on, "Neural, Parallel, and Scientific Computations", Morehouse College, Atlanta, Georgia: August 7-10: 2002.
54. International Conference on, Stochastic Modelling and IV International Workshop on Retrieval Queues", Cochin University of Science and Technology, Cochi-682 022, Kerala State, India: December 17-21, 2002.
55. International Conference on, Operations Research for Development", Anna University, Chennai-600 025,

- Tamil Nadu State, India: December 27-30, 2002.
56. NSF-Sponsored Workshop on, "Free Boundary Problems in Partial Differential Equations and Applications", Wayne State University, Detroit, Michigan: May 18-20, 2003
 57. The Fourth International Conference on, "Dynamical Systems and Applications", Morehouse College, Atlanta, Georgia: May 21-24, 2003.
 58. Thirty-Third Annual Lloyed Roeling/University of Louisiana at Lafayette, Mathematics Conference on "Applied Mathematics", University of Louisiana at Lafayette, Lafayette, Louisiana: October 24-26, 2003.
 59. An International Workshop on "Stability, Complexity and Robust Control of Dynamic Systems", Santa Clara University, Santa Clara, California: December 6, 2003.
 60. Fourth World Congress of Nonlinear Analysts, Orlando, Florida, USA.: June 30-July 7, 2004. One of the Plenary Speakers in the world Congress.
 61. Special Session on, "Stochastic Large-Scale, and Hybrid Systems ", American Mathematical Society's Annual Meeting, Atlanta, Georgia: January -5-8, 2005.
 62. Special Session on, "Theory and Applications of Stochastic Differential Equations ", American Mathematical Society's Central Section Meeting, Texas Tech University, Lubbock, Texas: April 8-10, 2005.
 63. An International Workshop on "Differential Equations and Dynamical Systems", Guelph, Canada: July 29-31, 2005.
 64. TheThird National/International Conference on, "Mathematical and Computational Models-NCMCM 2005", PSG College of Technology, Coimbatore, Tamilnadu State, India: December 15-16, 2005.
 65. An Annual National Conference in Mathematics-NCM-2005, Yashavantrao Chavan Institute of Science at Satara, Maharashtra State, India: December 22-24, 2005.
 66. Special Session on, □Theory and Applications of Stochastic Differential Equations ", American Mathematical Society Meeting, San Antonio, Texas: January 12-15, 2006
 67. International Conference on hybrid Systems and Applications", University of Louisiana at Lafayette, Lafayette, Louisiana, USA: May 22-26, 2006.
 68. Third International Conference on, "Neural, Parallel and Scientific Computations", Morehouse College, Atlanta, Georgia, USA: August 09-12, 2006. A Plenary Lecture.
 69. The Second The International Conference on, "Nonlinear Systems, Modeling, Simulation and Applications", N.E.S. Science College, Nanded, Maharashtra, India: December 19-23, 2006, the Keynote Speaker of the Conference.
 70. Special Session on, "Stochastic Analysis and Applications ",American Mathematical Society's Spring Southeastern Section Meeting, Davidson College, Davidson, North Carolina: March 3-4, 2007.
 71. The Fifth International Conference on, "Dynamical Systems and Applications", Morehouse College, Atlanta, Georgia: May 30-June 2, 2007. A Plenary Lecture.
 72. Special Session on, "Stochastic Analysis and Applications ", American Mathematical Society Meeting, San Diego, California: January 6-9, 2008.
 73. Fifth World Congress of Nonlinear Analysts, Orlando, Florida, USA: June 2-July 9, 2008. One of the Opening Speakers in the world Congress.
 74. Fifth World Congress of Nonlinear Analysts, Orlando, Florida, USA: June 2-July 9, 2008. One of the Plenary Speakers in the world Congress.
 75. Fifth World Congress of Nonlinear Analysts: "Energy Workshop": Orlando, Florida, USA.: June 2-July 9, 2008. One of the Panel Members .
 76. Fifth World Congress of Nonlinear Analysts: "The Seminal Contributions of Professor V. Lakshmikantham": Orlando, Florida, USA.: June 2-July 9, 2008. One of the Organizers and Speakers.
 77. 14th Annual Army Conference on, " Applied Statistics", Virginia Military Institute, Lexington, Virginia, October 22, 24, 2008
 78. Fifth Symposium on, "Frontiers of Statistical, Mathematical, and Computational Sciences", The George Washington University, Washington, DC: October 29-29, 2008.
 79. Special Session on, "Stochastic Hybrid Systems and Applications ", American Mathematical Society's Annual Meeting, Washington, DC: January 4-5, 2009.
 80. The Third International Conference on, " Modeling, Simulation and Applied Optimization", The American University at Sharjah, Sharjah, UAE: January 18-24, 2009: "Key Note Speaker"

81. Conference on "Probability, Statistics and Related Areas", Lamar University, Beaumont, Texas: February 27-28, 2009: "Invited Guest Speaker".

RESEARCH SUPERVISION

Master's Degree

| | |
|----------------------|--|
| Susan M. DmAmico: | □Control Problems and its Optimization□1979. |
| Peter Brouwer: | □Collective Choice and Social Preference Relations□1979. |
| Mark Mayhew: | □Stability Analysis of a Macroeconomic Model□1979. |
| Stephen M. Micciche: | □Stability Analysis and Limit Cycles□1979. |
| Abhijeet R. Mishra | Option Pricing under Jump Diffusions, 2005 |

Doctoral Degree

| | |
|--------------------------------|--|
| Roger Dale Kirby | Qualitative Behavior of Dynamical Vector Fields □2007 |
| Byron L. Griffin | A Study of Iterative Processes Under Random Structural Perturbations□2002 |
| Mahmoud J. Anabtawi | □A Study of Stochastic Partial Differential Equations□1998 |
| Bonita A. Lawrence | □Qualitative Properties of Systems of Stochastic Differential Equations□1994. |
| Michael S. Smith: | □Cascaded Kalman Filter Architectures with Applications to Global Positioning System□1989. |
| Mailvaganam Kathirkamanayagan: | □Study of Singularly Perturbed Systems□1988. |
| Janusz Golec: | □Approximations of Solutions of Stochastic Differential Equations□1988. |
| Ongard Sirisaengtaksin: | □Multitime-scale Singularly Perturbed Stochastic Systems with Applications□1986. |
| Srinivasa G. Rajalakshmi: | □Study of Large-Scale Singularly Perturbed Systems□1986. |

RESEARCH PUBLICATIONS

1. General Dynamical Systems and Functional Differential Equations, (with S.G. Deo), *Journal of Mathematical and Physical Sciences*, Vol. 3 (1969), pp. 257-268. MR 42 #2128.
2. Some Integral and Differential Inequalities, (with S.G. Deo), *Bulletin of the Calcutta Mathematical Society*, Vol. 61 (1969), pp. 47-53. MR 45 #5513.
3. Stability Properties of Functional Differential Systems, *Journal of Mathematical and Physical Sciences*, Vol. 4 (1970), pp. 236-254. MR 45 #7668.
4. Global Results and Stability of Motion of Functional Differential Equations, (with G. Ladas), *Journal of Mathematical and Physical Sciences*, Vol. 5 (1971), pp. 75-82. MR 46 #2187.
5. Oscillations of Functional Differential Equations Generated by Delays, (with G. Ladas and J.S. Papadakis), *Journal of Differential Equations*, Vol. 12 (1972), pp. 385-395. MR 48 #11724.
6. Asymptotic Equivalence and Functional Differential Equations, *Analele Stiintifice ale Universitatii "Al. I. Cuza" din Iasi Sectinunea I a Matematica*, Vol. XVIII (1972), pp. 331-342. MR 49 #5511.

7. Oscillations of Nonlinear Functional Differential Equations Generated by Retarded Actions, Delay and Functional Equations and Their Applications, (Editor: Klaus Schmitt), Academic Press, New York (1972), pp. 355-365. MR 52 #6146.
8. Asymptotically Conditionally Invariant Sets and Perturbed Systems, (with V. Lakshmikantham and S. Leela), *Annali di Matematica Pura ed Applicata*, Vol. XCIV (1972), pp. 33-40. MR 48 #2506.
9. Analysis of Invariant Sets, (with S. Leela), *Annali di Matematica Pura ed Applicata*, Vol. XCIV (1972), pp. 283-289. MR 47 #3777.
10. On the classes of Differential Systems with the Desired Behavior, (with S. Bernfeld and V. Lakshmikantham), *Rendiconti del Circolo Matematico di Palermo*, Vol. XXI (1972), pp. 85-97. MR 48 #2505.
11. On Some Fundamental Properties of Solutions of Differential Equations in a Banach Space, (with G. Ladas and V. Lakshmikantham), *Annali di Matematica Pura ed Applicata*, Vol. XCV (1973), pp. 255-267. MR 48 #662.
12. Differential Inequalities and Ito's Type Stochastic Differential Equations, (with V. Lakshmikantham and P. T. Liu), Equations Differentielles et Fonctionnelles Non Lineaires, (Editors: P. Janssens, J. Mawhin et N. Rouche), Hermann, Paris (1973), pp. 611-640. MR 55 #6572.
13. Global Results and Asymptotically Self-invariant Sets, (with S. Leela), *Atti della Accademia Nazionale dei Lincei. Rendiconti. Classe di Scienze Fisiche, Matematiche e Naturali*, Vol. LIV (1973), pp. 321-327. MR 50 #13763.
14. Growth Properties of Functional Differential Equations, *Atti della Accademia Nazionale dei Lincei. Rendiconti. Classe di Scienze Fisiche, Matematiche e Naturali*, Vol. LV (1973), pp. 356-363. MR 51 #6089.
15. Oscillations of Nonlinear Functional Differential Equations Generated by Retarded Actions I, *Rendiconti del Circolo Matematico di Palermo*. Vol. XXII (1973), pp. 67-76. MR 50 #13815.
16. Differential Inequalities and Stochastic Functional Differential Systems, *Journal of Mathematical Physics*, Vol. 15 (1974), pp. 738-743. MR 49 #8105.
17. Stability of Stochastic Functional Differential Equations, (with M. Chang and P.T. Liu), *Journal of Mathematical Physics*, Vol. 15 (1974), pp. 1474-1478. MR 50 #11443.
18. On Flow-Invariant Sets, (with V. Lakshmikantham), *Pacific Journal of Mathematics*, Vol. 51 (1974), pp. 215-220. MR 49 #10972.
19. Asymptotically Self-invariant Sets and Random Functional Differential Systems, (with V. Lakshmikantham and P. T. Liu), *Atti della Accademia Nazionale dei Lincei. Rendiconti. Classe di Scienze Fisiche, Matematiche e Naturali*, Vol. LVI (1974), pp. 30-37. MR 51 #10820.
20. Differential Inequalities and Differential Games II, (with V. Lakshmikantham), Differential Games and Control Theory, (Editors: Emilio O. Roxin, Pan-Tai Liu, and Robert L. Sternberg), Volume No. 10, Lecture Notes in Pure and Applied Mathematics, Marcel Dekker, Inc., New York (1974), pp. 37-48.
21. Differential Inequalities and Stability and Boundedness of Stochastic Differential Equations, (with V. Lakshmikantham and P. T. Liu), *Journal of Mathematical Analysis and Applications*, Vol. 48 (1974), pp. 341-352. MR 50 #11445.
22. Some n -th Order Differential Inequalities, (with S. G. Deo), *Indian Journal of Mathematics*, Vol. 16 (1974), pp. 89-96. MR 82j: 34011.

23. Nonlinear Boundary Value Problems and Several Lyapunov Functions for Functional Differential Equations, (with S. Bernfeld and V. Lakshmikantham), *Bolletino della Unione Matematica Italiana*, Vol. 10 (1974), pp. 602-613. MR 51 #6089.
24. Conditional Invariant Sets and Partial Stability, (with S. G. Deo), *Indian Journal of Pure and Applied Mathematics*, Vol. 5 (1974), pp. 755-757. MR 54 #13226.
25. Existence of Solutions of Two Point Boundary Value Problems for Nonlinear Systems, (with S. Bernfeld and V. Lakshmikantham), *Journal of Differential Equations*, Vol. 18 (1975), pp. 103-110. MR 51 #6017.
26. Systems of Differential Inequalities and Stochastic Differential Equations II, *Journal of Mathematical Physics*, Vol. 16 (1975), pp. 894-900. MR 55 #1463.
27. Differential Inequalities and Differential Games III, *Journal of Mathematical Analysis and Applications*, Vol. 51 (1975), pp. 368-376. MR 58 #26077.
28. Variational Comparison Theorem and Perturbations of Nonlinear Systems, Proceedings of the American Mathematical Society, Vol. 52 (1975), pp. 181-187. MR 51 #8567.
29. Stability of Multispecies Communities in Randomly Varying Environments, (with D. Siljak), *Journal of Mathematical Biology*, Vol. 2 (1975), pp. 165-178. MR 53 #2421.
30. Connective Stability of Large-Scale Stochastic Systems, (with D. Siljak), *International Journal of Systems Science*, Vol. 6 (1975), pp. 713-721. MR 56 #15069.
31. Stochastic Stability and Instability of Model Ecosystems, Proceedings of the 6th International Federation of Automatic Control World Congress, Boston, Massachusetts, The Publication of IFAC (1975), pp. 55.4:1-7.
32. Stability of Large-Scale Hereditary Systems under Structural Perturbations, Large-Scale Systems Theory and Applications, (Editors: G. Guardabassi and A. Locatelli), Udin, Italy, The Publication IFAC (1976), pp. 215-226. MR #33182.
33. Stochastic Perturbations of Nonlinear Systems of Differential Equations, (with R. Kulkarni), *Journal of Mathematical and Physical Sciences*, Vol. 10 (1976), pp.33-46. MR 53 #6041.
34. A Technique in Perturbation Theory, (with V. Lakshmikantham and S. Leela), *The Rocky Mountain Journal of Mathematics*, Vol. 6 (1976), pp.133-140. MR 52 #11216.
35. Competitive Processes and Comparison Differential Systems, *Transactions of the American Mathematical Society*, Vol. 221 (1976), pp. 391-402. MR 53 #11176.
36. Cellular Systems I: Stability of Chemical Systems, *Mathematical Biosciences*, Vol. 29 (1976), pp. 309-330. MR 58 #33092.
37. Cellular Systems II: Stability of Compartmental Systems, *Mathematical Biosciences*, Vol. 30 (1976), pp. 1-21. MR 58 #33067.
38. Stability of Model Ecosystems with Time-Delay, *Journal of Theoretical Biology*, Vol. 61 (1976), pp. 1-13. MR 54 #2291.
39. Systems of Differential Inequalities and Stochastic Differential Equations III, *Journal of Mathematical Physics*, Vol. 17 (1976), pp. 2113-2120. MR 55 #1464.

40. Systems of Functional Differential Inequalities and Functional Differential Equations, *Pacific Journal of Mathematics*, Vol. 66 (1976), pp. 161-171. MR 58 #11814.
41. Stability Technique and Thought Provocative Dynamical Systems, Nonlinear Systems and Applications, (V. Lakshmikantham), Academic Press, New York (1977), pp. 211-218. MR 57 #16865.
42. Stability of Time-Delay Compartmental Systems, Proceedings of the First International Conference on Mathematical Modeling, (Editor: Xavier J. R. Avula), Vol. III, University of Missouri-Rolla Press, Rolla (1977), pp. 1613-1622. MR 81J: 92011.
43. Instability and Unboundedness of Ito's Type Stochastic Differential Equations, (with S. Leela), *Revue Roumaine de Mathematiques Pures et Appliquees*, Tome XXII, No. 7 (1977), pp. 933-939. MR 56 #6864.
44. Logarithmic Norm and Stability of Linear Systems with Random Parameters, *International Journal of Systems Science*, Vol. 8 (1977), pp. 1057-1066. MR 58 #28940.
45. Competitive Processes I: Stability of Hereditary Systems, *Journal of Nonlinear Analysis: Theory, Methods, and Applications*, Vol. 1, No. 6 (1977), pp. 607-631. MR 58 #29022.
46. Competitive Processes II: Stability of Random Systems, *Journal of Theoretical Biology*, Vol. 68 (1977), pp. 331-354. MR 59 #93101.
47. Oscillations Caused by Retarded Perturbations of First Order Linear Ordinary Differential Equations, Atti della Accademia Nazionale dei Lincei. Rendiconti. *Classe di Scienze Fisiche, Matematiche e Naturali*, Bol. LXII (1977), pp. 351-359. MR 80j (60) #34097.
48. Time-Lag vs. Stability, *IEEE Transactions on Automatic Control*, Vol. AC-23 (1978), pp. 84-85. MR 58 #15509.
49. Stability of General Systems in Biological, Physical, and Social Sciences, Applied General Systems Research, (Editor: George J. Klir), Plenum Press, New York (1978), pp. 575-587. MR 58 #20718.
50. Systems of Differential Inequalities and Stochastic Differential Equations IV, *Journal of Mathematical Physics*, Vol. 19 (1978), pp. 1733-1741. MR 58 #13351.
51. Class of Functional Equations with Applications, *Journal of Nonlinear Analysis: Theory, Methods, and Applications*, Vol. 2 (1978), pp. 259-261.
52. Stability and Oscillations in Single-Species Processes with Past Memory, *International Journal of Systems Science*, Vol. 10 (1979), pp. 621-647. MR 80f (59) #92020.
53. Stability Technique and Thought Provocative Dynamical Systems II, Applied Nonlinear Analysis, (Editor: V. Lakshmikantham), Academic Press, New York (1979), pp. 215-218. MR 80k (59) 34077.
54. Stochastic Stability of Short-Run Market Equilibrium: A Comment, (with R. Kulkarni), *The Quarterly Journal of Economics*, November (1979), pp. 731-735.
55. Competitive-Cooperative Processes and Stability of Diffusion Systems, (with V. Lakshmikantham), Applied Stochastic Processes, (Editor: G. Adomian), Academic Press, New York, (1980), pp. 83-108. MR 83j-60084.

56. Stochastic Differential Inequalities of Ito Type, (with V. Lakshmikantham), Applied Stochastic Processes, (Editor: G. Adomian), Academic Press, New York (1980), pp. 109-120. MR 81m:60106.
57. Stochastic Stability Analysis of Model Ecosystems with Time-Delay, Differential Equations and Applications in Ecology, Epidemics and Population Problems, , (Editors: Stavros N. Busenberg and Kenneth L. Cooke), Academic Press, New York (1981), pp. 215-228. MR 84a: 92061.
58. A Stochastic Version of Turing's Cell Morphogenetic Model (with J. V. Robinson), Biomathematics and Cell Kinetics (Editor: M. Rotenberg). Elsevier/North-Holland: Biomedical Press, Amsterdam, The Netherlands, (1981), pp. 349-356.
59. Competitive Processes and Comparison Differential Systems II, *Journal of Mathematical and Physical Sciences*, Vol. 15 (1981), pp. 435-454. MR 83g: 34086.
60. Feasibility Constraints on the Elastic Expansions of Model Ecosystems, (with J. V. Robinson), *Journal of Theoretical Biology*, Vol. 97 (1982), pp. 277-287. MR 84d: 92041.
61. The Method of Upper, Lower Solutions and Volterra Integral Equations, (with V. Lakshmikantham and B. G. Pachpatte), *Journal of Integral Equations*, Vol. 4 (1982), pp. 353-360. MR 84c: 45001.
62. Existence and Asymptotic Behavior of Reaction-Diffusion Systems via Coupled Quasi-solutions, (with V. Lakshmikantham and A. S. Vatsala), Nonlinear Phenomena in Mathematical Sciences, (Editor: V. Lakshmikantham), Academic Press, New York, (1982), pp. 619-628. MR 85b: 35026.
63. Existence Theorems for a Class of Functional Differential Systems (with B. G. Pachpatte), *Journal of Mathematical Analysis and Applications*, Vol. 90 (1982), pp. 381-392. MR 84g: 34117.
64. Stochastic Versus Deterministic Systems, (with M. Sambandham), *Mathematics and Computers in Simulation*, Vol. 24 (1982), pp. 507-514. MR 84i: 93117.
65. On the Fundamental Theory of Nonlinear Second Order Stochastic Boundary Value Problems, (with Jagdish Chandra and V. Lakshmikantham), *Stochastic Analysis and Applications*, Vol. 1 (1983), pp. 1-19. MR 85f: 60080.
66. Error Estimates of Solutions and Mean of Solutions of Stochastic Differential Systems, (with M. Sambandham), *Journal of Mathematical Physics*, Vol. 24 (1983), pp. 815-822. MR 85d: 60112.
67. Multi-Parameter Singular Perturbations of Linear Systems with Multiple Time Scale, (with D.D. Siljak), *Automatica*, Vol. 19 (1983), pp. 385-394. MR 84j: 93032.
68. Multiplex Control Systems: Stochastic Stability and Dynamic Reliability, (with D.D. Siljak), *International Journal of Control*, Vol. 28 (1983), pp. 515-524.
69. Stochastic Analysis of Compressible Gas Lubrication Slider Bearing Problem, (with Jagdish Chandra and V. Lakshmikantham), *SIAM Journal on Applied Mathematics*, Vol. 43 (1983), pp. 1174-1186. MR 86a: 60093.
70. Comparison Theorems and Stochastic Boundary Value Problems, (with Jagdish Chandra), Trends in Theory and Practice of Nonlinear Differential Equations, (Editor: V. Lakshmikantham), Volume 90, Lecture Notes in Pure and Applied Mathematics, Marcel Dekker, Inc., New York, (1984), pp. 111-119. MR 86e: 35046.
71. Stochastic Boundary Value Problems with Applications, *Proceedings of the International Conference on Recent Advances in Nonlinear Analysis and Differential Equations* (Special Issue of Journal of Mathematical and Physical Sciences), Vol. 18 (1984), pp. 53-63. MR 85m: 60104.

72. Stability of Limiting Distributions of One and Two Species Stochastic Population Models, (with J. V. Robinson), *Mathematical Modelling*, Vol. 5 (1984), pp. 331-338. MR 86d: 92021.
73. Existence of Coupled Quasi-solutions of Systems of Nonlinear Elliptic Boundary Value Problems, (with V. Lakshmikantham and A. S. Vatsala), *Nonlinear Analysis: Theory, Methods and Applications*, Vol. 8 (1984), pp. 501-515. MR 85i: 35058.
74. On Roughness Effects in a Compressible Lubrication Problem, (with J. Chandra), *Recent Developments in Applied Mathematics*, Rensselaer Press, New York, (1983/84), pp. 8-12.
75. Existence of Coupled Quasi-solutions of Systems of Nonlinear Reaction-Diffusion Equations, (with V. Lakshmikantham and A.S. Vatsala), *Journal of Mathematical Analysis and Applications*, Vol. 108 (1985), pp. 249-266. MR 86j: 35098.
76. Diagonalization and Stability of Multi-time Scale Singularly Perturbed Linear Systems, (with S. G. Rajalakshmi), *Applied Mathematics and Computation*, Vol. 16 (1985), pp. 115-140. MR 86d: 34090.
77. Random Difference Inequalities, (with M. Sambandham), Trends in the Theory and Practice of Non-linear Analysis, (Editor: V. Lakshmikantham), Volume No. 110, North-Holland, Amsterdam, (1985), pp. 231-240. MR 87c: 39004.
78. System of First Order Partial Differential Equations and Monotone Iterative Technique, (with A. S. Vatsala), Trends in the Theory and Practice of Non-linear Analysis, (Editor: V. Lakshmikantham), Volume No. 110, North-Holland, Amsterdam, (1985), pp. 249-255. MR 87g: 35056.
79. Comparison Theorem and Error Estimates of Stochastic Differential Systems, (with V. Lakshmikantham and M. Sambandham), *Stochastic Analysis and Applications*, Vol. 3 (1985), pp. 23-62. MR 87b: 60090.
80. Singularly Perturbed Stochastic Differential Systems (with O. Sirisaengtaksin), Trends in the Theory and Practice of Non-linear Analysis, (Editor: V. Lakshmikantham), Volume No. 110, North-Holland, Amsterdam, (1985), pp. 241-248.
81. Sample Solutions of Stochastic Boundary Value Problem, (with K. Deimling and V. Lakshmikantham), *Stochastic Analysis and Applications*, Vol. 3 (1985), pp. 153-162. MR 86m: 60158.
82. Oscillation and Nonoscillation for System of Two First Order Linear Differential Equations with Delay, (with B. G. Zhang), *Journal of Mathematical Analysis and Applications*, Vol. 115 (1986), pp. 57-75. MR 87e: 34132.
83. Multitime-scale Singularly Perturbed Linear Stochastic Systems, (with O. Sirisaengtaksin) *Stochastic Analysis and Applications*, Vol. 4 (1986), pp. 213-238. MR 87g: 93067.
84. Existence, Uniqueness and Upper Estimates for Solutions of McShane-Type Stochastic Differential Systems, (with S. Seikkala), *Stochastic Analysis and Applications*, Vol. 4 (1986), pp. 409-429. MR 88g: 60149.
85. On Sample Solutions of Random Initial Value and Nicoletti Boundary Value Problems, (with S. Seikkala), *Mathematics and Computers in Simulation*, Vol. 29 (1987), pp. 223-231. MR 89a: 34065.
86. Ornstein-Uhlenbeck Operator and Wiener Functionals Generated by Ito-and McShane-Calculus, (with Bijin Hu), *Stochastic Analysis and Applications*, Vol. 5 (1987), pp. 27-51. MR 88f: 60114.

87. Numerical Solutions to Stochastic Difference Equations (with M. Sambandham), Nonlinear Analysis and Applications, (Editor: V. Lakshmikantham), Volume 109, Lecture Notes in Pure and Applied Mathematics, Marcel Dekker, Inc., New York, (1987). pp. 280-286.
88. On Near-Optimum Regulators for Large-Scale Systems, (with O. Siriasengtaksin), Nonlinear Analysis and Applications, (Editor: V. Lakshmikantham), Volume 109, Lecture Notes in Pure and Applied Mathematics, Marcel Dekker, Inc., New York, (1987), pp. 290-296. MR 88k: 93007.
89. Oscillation of Even Order Delay Differential Equations, (with B. G. Zhang), *Journal of Mathematical Analysis and Applications*, Vol. 127 (1987), pp. 140-150. MR 88k: 34076.
90. Singular Perturbations of Linear Systems with Multi-parameter and Multiple Time Scales, (with S. G. Rajalakshmi), *Journal of Mathematical Analysis and Applications*, Vol. 129 (1988), pp. 457-481. MR 89a: 34062.
91. Near-Optimum Regulators for Stochastic Singularly Perturbed Systems, (with O. Sirisaengtaksin), *Stochastic Analysis and Applications*, Vol. 6 (1988), pp. 11-79. MR 89b: 93117.
92. On Multitime Method for Large-Scale Filtering, (with J. Chandra and O. Sirisaengtaksin), *International Journal of Systems Science*, Vol. 19 (1988), pp. 1579-1604. MR 89g: 93096.
93. Diagonalization and Stability of Large-Scale Singularly Perturbed Linear Systems, (with M. Kathirkamanayagan), *Journal of Mathematical Analysis and Applications*, Vol. 135 (1988), pp. 38-60. MR 89i: 34082.
94. Variation of Constants Formula and Error Estimates to Stochastic Difference Equations, (with M. Sambandham), *Journal of Mathematical and Physical Sciences*, Vol. 22 (1988), pp. 557-584. MR 89j: 60086.
95. Large-Scale Stochastic Singularly Perturbed Systems (with O. Sirisaengtaksin), *Mathematics and Computers in Simulation*, Vol. 31 (1989), pp. 31-40. MR 90a: 93101.
96. On Near Optimum Large-Scale Regulators, (with O. Sirisaengtaksin), Modern Optimal Control, (Editor: Emilio O. Roxin), Volume 119, Lecture Notes in Pure and Applied Mathematics, , Marcel Dekker, Inc., New York, (1989), pp. 249-257. MR 90i: 93010.
97. Processing of Prefiltered GPS Data, (with M. S. Smith), *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 25 (1989), pp. 711-728.
98. Large-Scale Singularly Perturbed Boundary Value Problems, (with M. Kathirkamanayagan), *Journal of Applied Mathematics and Simulation*, Vol. 2 (1989), pp. 139-168. MR90i: 34026.
99. Euler-Type Approximation for Systems of Stochastic Differential Equations, (with J. Golec), *Journal of Applied Mathematics and Simulation*, Vol. 2 (1989), pp. 239-249. MR 91d: 60133.
100. Study of Large-Scale Nonlinear Systems with Singular Perturbations (with S. G. Ragalakshmi), *Differential Equations and Applications*, Vol. I, II, Columbus, Ohio (1988), pp. 70-75, Ohio Univ. Press, Athens, Ohio, 1989. MR 90j: 34067.
101. Convergence and Stability of Distributed Stochastic Iterative Processes, (with D. D. Siljak), *IEEE Transactions on Automatic Control*, Vol. 35 (1990), pp. 665-672. MR 91d: 93074.
102. Averaging Principle and Systems of Singularly Perturbed Stochastic Differential Equations (with J. Golec), *Journal of Mathematical Physics*, Vol. 31 (1990), pp. 1116-1123. MR 91e: 60166.

103. Stochastic Delay Differential Systems, Functional Differential Equations, (Editors: T. Yoshizawa and J. Kato), World Scientific Publishing Co., New Jersey (1991), pp. 204-212.
104. Modeling of Dynamic Systems by Itô-Type Systems of Stochastic Differential Equations, Integral Methods in Science and Engineering-90, (Editors: A. Haji-Sheikh, Constantin Corduneanu, John L. Fry, Tseng Huang, and Fred R. Payne), Hemisphere Publishing Corp., Washington, D. C. (1991), pp. 63-74. MR 93g: 60122.
105. Itô-Type systems of Stochastic Integro-Differential Equations (with S. Sathananthan, Integral Methods in Science and Engineering-90, (Editors: A. Haji-Sheikh, Constantin Corduneanu, John L. Fry, Tseng Huang, and Fred R. Payne), Hemisphere Publishing Corp, Washington, D. C. (1991), pp. 75-89. MR 93g: 60133.
106. Periodic Boundary Value Problem for Impulsive Integro-Differential Equations of Volterra Type (with S. Sathananthan), *Journal of Mathematical and Physical Sciences*, Vol. 25 (1991), pp. 119-129. MR 93d: 45005.
107. Singularly Perturbed Boundary Value Problems, (with M. Kathirkamanayagan), *Journal of Mathematical Analysis and Applications*, Vol. 168 (1992), pp. 430-459. MR 93g: 34084.
108. On Multitime Method and the Rate of Convergence for a Class of Singularly Perturbed Stochastic Systems (with J. Golec), *Journal of Mathematical Systems, Estimation, and Control*, Vol. 2 (1992), pp. 245-262. MR 93d: 34101.
109. Error Estimates and Stability of Itô-Type Systems of Nonlinear Stochastic Integro-Differential Equations (with S. Sathananthan), *Applicable Analysis*, Vol. 43 (1992), pp. 163-189.
110. Stability of Lotka-Volterra Model (with S. Sathananthan), *Mathematical and Computer Modelling*, Vol. 16 (1992), pp. 99-107.
111. Comparison Theorem and Its Applications (with M. Sambandham and S. Sathananthan), *General Inequalities*, 6, Birkhauser Verlag Basel, 1992, pp. 321-342.
112. Stochastic Integro-differential equations with Random Parameters-I (with S. Sathananthan), *Dynamic Systems and Applications*, Vol. 1 (1992), pp. 369-390. MR 93K: 60160
113. On an Approximation Method for a class of Stochastic Singularly Perturbed Systems (with J. Golec), *Dynamic Systems and Applications*, Vol. 2 (1993), pp. 11-20. MR 93j: 60076
114. Numerical Treatment of Random Polynomials (with M. Sambandham), *Applied Mathematics and Computation*, Vol. 55 (1993), pp. 13-30.
115. Stochastic Integro-Differential Equations with Random Parameters-II (with S. Sathananthan), *Dynamic Systems and Applications*, Vol. 3 (1994), pp. 563-582.
116. Periodic Boundary Value Problems for Second Order Integro-Differential Equations of Volterra Type (with S. Sathananthan and M. V. Moorthy), *Proceedings of Dynamic Systems and Applications*, Vol. 1 (1994), pp. 191-197.
117. Derivation of Optimality Conditions for a Stochastic Control Problem (with N. G. Medhin), *Stochastic Analysis and Applications*, Vol. 13 (1995), pp. 165-176.
118. Stability and Convergence of Large-Scale Stochastic Approximation Procedures, (with Bonita A. Lawrence), *International Journal of Systems Science*, Vol. 26 (1995), pp. 595-618.
119. Stability Analysis of Hereditary Iterative Processes, (with S. Sathananthan), *Applied Mathematics and*

Computation, Vol. 73 (1995), pp. 39-54.

120. Periodic Boundary Value Problems for Second Order Impulsive Integro-Differential Equations of Volterra Type (with M. V. Moorthy and S. Sathananthan), *Applicable Analysis*, Vol. 58 (1995), pp. 187-197.
121. Stability Analysis of Neural Networks (with M. Sambandham), *Proceedings of Neural, Parallel and Scientific Computations*, Vol. 1 (1995), pp. 254-256.
122. Numerical Treatment of Random Population Models, (with S. Sathananthan and R. Pirapakaran), *Proceedings of Neural, Parallel and Scientific Computations*, Vol. 1 (1995), pp. 257-260.
123. Itô-type Stochastic Differential Systems with Abstract Volterra Operators (with Zephyrinus C. Okonkwo). *Dynamic Systems and Applications*, Vol. 6 (1997), pp.461-468.
124. Application of Neural Network Methodology for Approximation of Certain Extremum Problems (with N. G. Medhin and M. Sambandham), *Computational Methods and Neural Networks: Parallel, Systolic and Neurocomputing* (Editors: M. P. Bekakos and M. Sambandham), Dynamic Publishers, Atlanta, GA (1999), pp 267-287.
125. Convergence and Stability Analysis of Large-scale Parabolic Systems under Markovian Structural Perturbations-I (with M. J. Anabtawi and S. Sathananthan) *International Journal of Applied Mathematics*, Vol. 2 (2000), pp. 57-85.
126. Convergence and Stability Analysis of Large-scale Parabolic Systems under Markovian Structural Perturbations-II (with M. J. Anabtawi and S. Sathananthan) *International Journal of Applied Mathematics*, Vol. 2 (2000), pp. 87-111.
127. Convergence and Stability Analysis of System of Partial Differential Differential Equations under Markovian Structural Perturbations - I: Vector Lyapunov-like Functions (with M. J. Anabtawi) *Stochastic Analysis and Applications*, Vol. 18 (2000), pp. 493-524.
128. Convergence and Stability Analysis of System of Partial Differential Differential Equations under Markovian Structural Perturbations - II: Vector Lyapunov-like Functionals (with M. J. Anabtawi) *Stochastic Analysis and Applications*, Vol. 18 (2000), pp. 671-696.
129. Large Scale Integro-Differential Systems under Structural Perturbations (with S. Sathananthan and S. Suthaharan), *Communications in Applied Analysis*, Vol. 4 (2000), pp. 459-474.
130. Stability and Convergence of Stochastic Approximation Procedures under Markovian Structural Perturbations (with Bonita A. Lawrence), *Dynamic Systems and Applications*, Vol. 10 (2001), pp. 145-175.
131. Block Systems of Parabolic Differential Inequalities and Comparison Theorems (with M. J. Anabtawi), *Proceedings of Dynamic Systems and Applications*, (Editors: G. S. Ladde and M. Sambandham), Vol. 3, Dynamic Publishers, Inc., Atlanta, Georgia (2001), pp. 23-34.
132. Problem Solving Process, *The Bulletin of the Marathwada Mathematical Society*, Vol. 2 (2001), pp. 90-104.
133. Qualitative Analysis of Discrete Iterations and Automata Networks, *Proceedings of Neural, Parallel, and Scientific Computations*, Vol. 2 (2002), pp. 251-156.
134. Stability of Large-Scale Distributed Parameter Systems (with I-Tsung Li), *Dynamic Systems and Applications* Vol. 11 (2002), pp. 311-323.

135. Hybrid Systems: Convergence and Stability Analysis of Large-Scale Approximation Schemes, *International Journal of Hybrid Systems*, Vol. 2 (2002), pp. 237-262.
136. A Few Recent Advancement in the Study of Hybrid Systems, *Proceedings of ICNPAA 2002: IVth International Conference on Nonlinear Problems in Aviation and Aerospace* (Editor: Seenita Sivasundaram), European Conference Publications, Cambridge, United Kingdom, 2003, pp. 289-296.
137. Comparison of Actual and Analytic Computational Error Estimates to Ito-type Stochastic Differential Equations (with S Peterson and M. Sambandham), *International Journal of Computational and Numerical Analysis and Applications*, Vol. 4 (2003), pp. 189-199.
138. Error Estimates for Random Boundary Value Problems with Applications to A Hanging Cable Problem (N. G. Medhin and M. Sambandham), *Mathematical and Computer Modelling*, Vol. 38 (2003), pp. 1037-1050.
139. On Joint Probability Density Functions of Discrete Time Processes (with Bonita A. Lawrence), *Mathematics and Computer in Simulation*, Vol.63 (2003), pp. 629-650.
140. Stabilizing and Oscillizing Hereditary and Random Structural Perturbations Effects on Multispecies Processes” , Proceedings of Conference on: Nonlinear Systems: Modeling, Simulation and Applications, (Editor: S. B. Agase), The Publication of Science College, Nanded, India, (2003), pp.1-20.
141. Stability of Stochastic Distributed Parameter Large-Scale Control Systems Under Random Structural Perturbations, *Dynamic of Continuous, discrete and Impulsive Systems Series A : Mathematical Analysis*, Vol. 11 (2004), pp. 233-254.
142. Stability and Convergence of Large-Scale Stochastic Approximations Under Markovian Structural Perturbations (with Bonita A. Lawrence), Differential Equations and Dynamical Systems, (Editor: D. Bahuguna), Narosa Publishing House, New Delhi, 2004, pp. 25-48.
143. Qualitative Properties of Stochastic Iterative Processes Under Random Structural Perturbations (with Byron L. Griffin), *Mathematics and Computers in Simulations*, Vol. 67 (2004), pp. 181-2000.
144. Hybrid Systems: Convergence and Stability Analysis of Stochastic large-Scale Approximation Schemes, *Dynamic Systems and Applications*, Vol. 13 (2004), pp. 487-512.
145. Stability Analysis of Stochastic Hybrid Systems (with J. Chandra), *International Journal of Hybrid Systems*, Vol. 4 (2004), pp. 179-198.
146. Professor V. Lakshmikantham: A Brief Review of Contributions and Legacies, *Bulletin of the Marathwada Mathematical Society*, Vol. 5 (2004), pp. (viii)-(xx).
147. Hybrid Dynamical Inequalities and Applications, *Dynamic Systems and Applications*, Vol.14 (2005), pp. 481-514.
148. Dynamics of Fluids Flows Under Markovian Structural Perturbations” (with M. J. Anabtawi), *Mathematical and Computer Modelling*, Vol. (2005), pp. 967-976.
149. Variational Comparison Method and Stochastic Time Series Analysis, Mathematical and Computational Models-NCMC 2005 (Editors: R. Arumuganathan and R. Nadarajan), Allied Publishers Pvt. Ltd, New Delhi, 2005, pp. 16-40.
150. Large-Scale Stochastic Hereditary Systems Under Markovian Structural Perturbations I: Variational Comparison Theorems, *Journal of Applied Mathematics and Stochastic Analysis*, Vol. 2006, (2006) article ID

- 19871 11 pages: JAMSA/19871.
151. Large-Scale Stochastic Hereditary Systems Under Markovian Structural Perturbations II: Qualitative Analysis of Isolated Systems, *Journal of Applied Mathematics and Stochastic Analysis*, Vol. 2006 (2006), Article ID 67268, 14 pages: JAMSA/67268.
 152. Large-Scale Stochastic Hereditary Systems Under Markovian Structural Perturbations III: Qualitative Analysis, *Journal of Applied Mathematics and Stochastic Analysis*, Vol. 2006 (2006), Article ID 24643, 10 pages: JAMSA/24643.
 153. Dynamic Processes Under Random Environment (with A. G. Ladde), *Bulletin of the Marathwada Mathematical Society*, Vol. 8, No. 2 (2007), pp. 96-123.
 154. Using Frequency Analysis to Determine Wetland Hydroperiod (with Lisa D. Foster, Nirzhar Saha, Mark Ross, and P. Wang), *Neural, Parallel, and Scientific Computations*, Vol. 16 (2008), pp. 17-34..
 155. Dynamic Modeling of Root Water Uptake Using Soil Moisture Data (with Nirzhar Saha and Mark Ross), *Neural, Parallel, and Scientific Computations*, Vol. 16 (2008), pp. 105-124.
 156. Modeling Hybrid Network Dynamics under Random Perturbations (with Andrzej Korzeniowski), *Nonlinear Analysis: Hybrid Systems*, Vol. 3 (2009), pp. 143-149.
 157. Stochastic Modeling and Statistical Analysis on the Stock Price Processes (with Ling Wu), *Nonlinear Analysis: Theory and Methods*, Vol. -- (2009), pp. ----- (in Press).
 158. Collective Behavior of Multi-Agent Network Dynamic Systems Under Internal and External Random Perturbations (with J. Chandra), *Nonlinear Analysis: Real World Applications*, Vol. -- (2009), pp. ----- (in Press).
 159. Determinant Functions and Applications to Stochastic Differential Equations (A. G. Ladde), *Communications in Applied Analysis*, (Submitted).
 160. Energy Function Method for Solving Nonlinear Differential equations, (Roger D. Kirby, and A. G. Ladde), *Dynamical Systems and Applications*, (Submitted).

MONOGRAPHS AND TEXTBOOKS

Published

1. *Random Differential Inequalities* (with V. Lakshmikantham), Academic Press, New York, 1980. MR 84b: 60081.
2. *Monotone Iterative Techniques for Nonlinear Differential Equations* (with V. Lakshmikantham and A. S. Vatsala), Pitman Publishing, Inc., Marshfield, Massachusetts, 1985. MR 88g: 35006.
3. *Oscillation Theory of Differential Equations with Deviating Arguments* (with V. Lakshmikantham and B. G. Zhang), Marcel Dekker, Inc., New York, 1987. MR90h: 34118.
4. *Stochastic Versus Deterministic Systems of Differential Equations* (with M. Sambandham), Marcel Dekker, Inc., New York, 2004.
5. *An Introduction to Differential Equations-I: Deterministic Modeling, Methods and Analysis* (with A. G. Ladde),

in press.

6. An Introduction to Differential Equations-II: Stochastic Modeling, Methods and Analysis (with A. G. Ladde), in press.

Edited

1. *Proceedings of Dynamical Systems and Applications* (with M. Sambandham), Vol. 1, Dynamic Publishers, Inc., Atlanta, Georgia, 1994.
2. *Proceedings of Neural, Parallel and Scientific Computations* (with S. K. Aityan, L. T. Grujic, R. J. Hathaway, N. Medhin and M. Sambandham), Dynamic Publishers Inc., Atlanta, GA, 1995.
3. *Proceedings of Dynamic Systems and Applications* (with M. Sambandham) Vol. 2, Dynamic Publishers, Inc., Atlanta, Georgia, 1996.
4. *Proceedings of Dynamic Systems and Applications* (with N. G. Medhin and M. Sambandham) Vol. 3, Dynamic Publishers, Inc., Atlanta, Georgia, 2001.
5. *Proceedings of Neural, Parallel, and Scientific Computations* (with M. P. Bekakos, G. Medhin and M. Sambandham), Vol. 2, Dynamic Publishers, Inc., Atlanta, Georgia, 2002.
6. *Proceedings of Dynamic Systems and Applications* (with N. G. Medhin and M. Sambandham) Vol.4, Dynamic Publishers, Inc. Atlanta, Georgia, 2004.
7. *Proceedings of Dynamic Systems and Applications* (with N. G. Medhin, Chuang Peng and M. Sambandham) Vol.5, Dynamic Publishers, Inc. Atlanta, Georgia, 2008.

Work in Progress

- 1 Qualitative Analysis of Competitive-Cooperative Process in Biological, Physical and Social Sciences.
- 2 Introduction to Bio-mathematics I: Deterministic Treatment.
- 3 Introduction to Bio-mathematics II: Stochastic Treatment.