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ADMINISTRATIVE AND LEADERSHIP EXPERIENCE AT TEXAS A&M UNIVERSITY

Executive Associate Dean (6/10-present); Interim Executive Associate Dean (9/09-6/10)

Dr. Anand serves as the Chief Operating Officer for the College of Engineering. He has the responsibility of managing faculty, staff, budget, students, and space resources across the college. The college has 13 academic departments, 14 academic programs, 17,728 students (13,914 undergraduates and 3,814 graduate), 450 tenure-track faculty, 225 FTE academic professional track faculty and an annual academic budget of over \$120M. This is one of the nation's largest colleges of engineering, graduating 2,530 BS engineers, 857 MS engineers, and 241 PhDs in FY 18. Dr. Anand is actively involved in raising endowment funds for various programs. He is credited with raising \$22.3M in endowment funds and \$320,677 in pass through funds to date.

Interim Dean of the College of Engineering, Acting Vice Chancellor for Engineering and Acting Director of the Texas A&M Engineering Experiment Station (09/11-1/12);

Dr. Anand served as the interim chief administrator of the Texas A&M University engineering programs which includes the College of Engineering, Texas A&M Engineering Experiment Station, Texas A&M Transportation Institute, and Texas A&M Engineering Extension Service. Dr. Anand's budgetary responsibility in this position was approximately \$400M.

Associate Dean for Research (12/08-6/10) and Associate Agency Director (12/08 – present) College of Engineering and Texas A&M Engineering Experiment Station (TEES)

Dr. Anand is responsible for and provides leadership for interdisciplinary research programs, strategic research development, safety programs, and activities of TEES Centers and Institutes. He has coordinated a number of large-scale proposal efforts, and developed new Standard Administrative Procedures to streamline the review of centers and institutes. As needed, he adjudicated intellectual property related disputes. Dr. Anand represented the College of Engineering on various university wide research committees and works on the TEES and the college strategic planning committees. As the TEES Associate Director, Dr. Anand is responsible for academic programs, centers, and institutes. In addition to TEES' statewide outreach mission, it also serves as the research arm of the College of Engineering. Annual research direct expenditures for TEES are over \$85M and cover a very

wide range of research topics.

Interim Head (9/06-8/07)

Artie McFerrin Department of Chemical Engineering

Dr. Anand provided leadership for the Department of Chemical Engineering for a period of one year while the department searched for a permanent head. His main contributions include streamlining the departmental budget, developing the Departmental Operating Guidelines and Procedures document, evaluating faculty performance, streamlining the graduate admissions process, and recruiting two faculty members for the Texas A&M Qatar campus. During the interim period, Dr. Anand was responsible for managing over \$2M in the academic budget and over \$3M in the research budget.

Assistant Dean for Graduate Programs (9/04-8/07)

Associate Dean for Graduate Programs (9/07-10/08)

College of Engineering

Dr. Anand's responsibilities included providing leadership in developing graduate policies and procedures, recruitment of graduate students (particularly underrepresented minority students) across the college with eleven (11) departments and over 2,000 graduate students, chairing monthly Graduate Instruction Committee meetings, preparing the annual budget, organizing and conducting the Undergraduate Summer Research Grants program for the college, development and application of discrete math models to predict enrollment and cost associated with enrollment increases, managed a budget of \$250K/year, and represented the College of Engineering at the university level Graduate Operations Committee. His main accomplishments since starting in fall 04 include an increase in graduate student enrollment to 2,659 in fall 08 while maintaining high quality (Acceptance Rate: 35.1% and Average GRE Q: 750) and diversity (increase in enrollment of underrepresented minority students: 37.5% and increase in enrollment of domestic students: 24%).

Associate Head (5/03-8/06)

Department of Mechanical Engineering

Dr. Anand's responsibilities included assisting the department head in day-to-day operations, preparing class schedules, and assisting the department head with budget preparation.

Graduate Program Director (9/98-8/04)

Department of Mechanical Engineering

Dr. Anand was responsible for graduate student recruitment, counseling graduate students, and formulation and implementation of policies affecting all facets of the graduate program. His principal accomplishments include chairing the committee to develop Guidelines and Operating Procedures for the department, development of a comprehensive website for the graduate program, establishment of appropriate data bases to enable data driven decision making, establishment of a digital archiving system for graduate student records, establishment of a graduate computing laboratory, GRE scores of incoming students increased significantly, made admissions and awarding of assistantships very transparent, and the graduate program consistently ranked in the top 25 in *U.S. News & World Report* rankings.

EDUCATION

PhD	Mechanical Engineering, Purdue University	1983
MS	Mechanical Engineering, Kansas State University	1979
BE	Mechanical Engineering, Bangalore University, India	1978

PROFESSIONAL REGISTRATION

Registered in the State of Texas, 1989.

EMPLOYMENT EXPERIENCE

Texas A&M University, College of Engineering, College Station, Texas

- Regents Professor (11/14-present)
- Acting Vice Chancellor and Interim Dean (9/11-1/12)
- Acting Director for Texas A&M Engineering Experiment Station (9/11-1/12)
- Executive Associate Dean (06/10-present)
- Interim Executive Associate Dean (9/09-6/10)
- Associate Dean for Research (10/08- 6/10)
- Associate Director for Texas A&M Engineering Experiment Station (12/8-present)
- Interim Associate Director for Texas A&M Engineering Experiment Station (10/8-12/08)
- Associate Dean for Graduate Programs (9/07-10/08)
- Assistant Dean for Graduate Programs (9/04-8/07)

Texas A&M University Artie McFerrin Department of Chemical Engineering

- Interim Head of the Department (9/06-8/07)

Texas A&M University, Department of Mechanical Engineering, College Station, Texas

- James and Ada Forsyth Professor (6/07- present)
- Associate Head (5/03-8/06)
- Graduate Program Director (9/98-8/04)
- Professor (9/96- present)
- Associate Professor (9/91-8/96)
- Assistant Professor (9/85-8/91)

The Singer Link Division, Silver Spring, Maryland

- Senior Systems Engineer (5/85- 6/85)
- Systems Engineer III (8/83-5/85)

Purdue University, School of Mechanical Engineering, West Lafayette, Indiana

- Graduate Research/Teaching Assistant (1/80-8/83)

Kansas State University, Department of Mechanical Engineering, Manhattan, Kansas

- Graduate Research Assistant (8/78-12/79)

RESEARCH INTERESTS

Numerical Heat Transfer and Fluid Flow, Numerical Techniques, Aerosols and Condensation Heat Transfer.

TEACHING ACTIVITIES

Engineering Analysis; Thermodynamics; Principles of Energy Analysis in Buildings; Applications of Energy Management; Heat Transfer; Numerical Heat Transfer and Fluid Flow; Intermediate Heat Transfer; and Statics and Particle Dynamics.

CONSULTING EXPERIENCE

- Texas Utilities, Comanche Peak Steam Electric Station, Texas
Real Time Simulation of Pressurized Water Reactors
- HTRI, College Station, Texas
Numerical Modeling of Heat Transfer and Fluid Flow through Plate Heat Exchanger Passages
- Pella, Pella, Iowa
Pultrusion of Polymers
- Qatar University, Doha, Qatar
Member, Advisory Committee, Department of Mechanical Engineering
- Louisiana State University, Baton Rouge, Louisiana
Member, Program Review Panel, Department of Mechanical Engineering

HONORS AND AWARDS

- Undergraduate Academic Standing 4th out of ~200, Bangalore University, 1978
- Fellow of Mechanical Engineering, 80-81, Purdue University
- Exxon Faculty Assistance Grant 86-87, Texas A&M University
- Exxon Faculty Assistance Grant 85-86, Texas A&M University
- ASME Membership Development Achievement Award, 86-87, Brazos Section
- J.G.H. Thompson Award for Excellence in Teaching, awarded by Pi Tau Sigma, May 1, 1989, Texas A&M University
- Member, Sigma Xi, 1992
- Outstanding Graduate Teaching Award, September 1994, Department of Mechanical Engineering, Texas A&M University
- Elected as a Fellow of ASME, November 1996
- Northrop Grumman Faculty Fellow, 97-98, College of Engineering, Texas A&M University
- TEES Fellow, 98-99, College of Engineering, Texas A&M University
- TEES Fellow, 99-00, College of Engineering, Texas A&M University
- The Association of Former Students Texas A&M University College Level Faculty Distinguished Achievement in Teaching Award, 2001
- Charles W. Crawford Service Award, College of Engineering, Texas A&M University, 2006
- James and Ada Forsyth Professorship, Department of Mechanical Engineering, Texas A&M University, July, 2007
- Distinguished Alumni, B. M. S. College of Engineering, Bangalore, India, December 2008

- Outstanding Graduate Teaching Award, March 2009, The Department of Mechanical Engineering, Texas A&M University
- Inducted to Kansas State University Engineering Hall of Fame, Manhattan, Kansas, March 2011
- Regents Professor, Texas A&M University System, November 2014
- The Association of Former Students Texas A&M University, University Level Faculty Distinguished Achievement Award for Administration, 2018

CITATIONS: Over 2,000 citations and *h-index*= 26

<http://scholar.google.com/citations?hl=en&user=HK4JcQgAAAAJ>

REFEREED JOURNAL PUBLICATIONS

1. Anand, N.K. and Tree, D.R., "Steady State Simulation of Single Tube-Finned Condenser Heat Exchanger," *ASHRAE Transactions*, Vol. 88, Pt. 2, pp. 185-200, 1982.
2. Chen, S.C., Anand, N.K., and Tree, D.R., "Analysis of Transient Laminar Convective Heat Transfer Inside a Circular Duct," *ASME Journal of Heat Transfer*, Vol. 105, pp. 922-924, 1983.
3. Anand, N.K. and Tree, D.R., "Some Studies of Effects of Axial Conduction in a Tube Wall on the Steady-State Laminar Convective Heat Transfer," *ASME Journal of Heat Transfer*, Vol. 109, pp. 1025-1028, 1987.
4. Chellaiah, S., Viskanta, R., Ranganathan, P., and Anand, N.K., "Analysis of Core and Core Barrel Heat-Up Under Conditions Simulating Severe Reactor Accidents," *Nuclear Engineering and Design*, Vol. 105, pp. 259-267, 1988. DOI:10.1016/0029-5493(88)90248-8
5. Anand, N.K., Husain, S.R., and Viskanta, R., "Transient Conjugate Heat Transfer in the Matrix of a Thermal Regenerator," *Numerical Heat Transfer*, Vol. 13, pp. 167-187, 1988. DOI:10.1080/10407788808913610
6. Fithen, R.M. and Anand, N.K., "Finite Element Analysis of Conjugate Heat Transfer in Axisymmetric Pipe Flows," *Numerical Heat Transfer*, Vol. 13, pp. 189-203, 1988. DOI:10.1080/10407788808913611
7. Somasundaram, S., Anand, N.K., and Husain, S.R., "Calculations of Transient Turbulent Heat Transfer in a Rectangular Channel: Two-Layer Model," *Numerical Heat Transfer*, Vol. 13, pp. 467-480, 1988. DOI:10.1080/10407788808913626

8. Suh, Y.B., Anand, N.K., Aung, W., and Somasundaram, S., "Steady-State Moisture Profiles in an Unsaturated Porous Medium with Impermeable Boundaries," *International Journal of Heat and Mass Transfer*, Vol. 31, pp. 2587-2589, 1988. DOI:10.1016/0017-9310(88)90185-8
9. Kondepudi, S.N., Somasundaram, S., and Anand, N.K., "A Simplified Model for the Analysis of a Phase Change Material Based Thermal Energy Storage System," *Heat Recovery Systems & Combined Heat & Power*, Vol. 8, pp. 247-254, 1988. DOI:10.1016/0890-4332(88)90060-9
10. Anand, N.K. and McFarland, A.R., "Particle Deposition in Aerosol Sampling Lines Caused by Turbulent Diffusion and Gravitational Settling," *American Industrial Hygiene Association Journal*, Vol. 50, pp. 307-312, 1989. DOI:10.1080/15298668991374714
11. Suh, Y.B., Somasundaram, S., and Anand, N.K., "Remarks on the Potential Cross Flow Over Tube Banks," *ASME Journal of Applied Mechanics*, Vol. 56, pp. 476-479, 1989. DOI:10.1115/1.3176109
12. Somasundaram, S., Anand, N.K., Suh, Y.B., and Aung, W., "Analysis of Moisture Migration in Two-Dimensional Unsaturated Porous Media with Impermeable Boundaries," *International Journal of Heat and Mass Transfer*, Vol. 32, pp. 1733-1739, 1989. DOI:10.1016/0017-9310(89)90055-0
13. Anand, N.K., Schliesing, J.S., O'Neal, D.L., and Peterson, K.T., "Effects of Outdoor Coil Fan Pre-Start on Pressure Transients During the Reverse Cycle Defrost of a Heat Pump," *ASHRAE Transactions*, Vol. 95, Pt. 2, pp. 699-704, 1989.
14. O'Neal, D.L., Peterson, K.L., Anand, N.K., and Schliesing, J.S., "Refrigeration System Dynamics During the Reverse Cycle Defrost," *ASHRAE Transactions*, Vol. 95, Pt. 2, pp. 689-698, 1989.
15. Kim, S.H., Anand, N.K., and Aung, W., "Effect of Wall Conduction on Free Convection between Asymmetrically Heated Vertical Parallel Plates: Uniform Wall Heat Flux," *International Journal of Heat and Mass Transfer*, Vol. 33, pp. 1013-1023, 1990. DOI:10.1016/0017-9310(90)90082-6
16. Anand, N.K., Kim, S.H., and Aung, W., "Effect of Wall Conduction on Free Convection between Asymmetrically Heated Vertical Parallel Plates: Uniform Wall Temperature," *International Journal of Heat and Mass Transfer*, Vol. 33, pp. 1025-1028, 1990. DOI:10.1016/0017-9310(90)90083-7
17. Kim, S.H., Anand, N.K., and Fletcher, L.S., "Free Convection between a Series of Vertical Parallel Plates with Embedded Line Heat Sources," *ASME Journal of Heat Transfer*, Vol. 113, pp. 108-115, 1991. DOI:10.1115/1.2910512
18. McFarland, A.R., Wong, F.S., Anand, N.K., and Ortiz, C.A., "Aerosol Penetration Through a Model Transport System: Comparison of Theory and Experiment,"

- Environmental Science and Technology*, Vol. 25, pp. 1573-1577, 1991. DOI:10.1021/es00021a007
19. O'Neal, D.L., Peterson, K., and Anand, N.K., "Effect of Short-Tube Orifice Size on the Performance of an Air Source Heat Pump During the Reverse-Cycle Defrost," *International Journal of Refrigeration*, Vol. 14, pp. 52-57, 1991. DOI:10.1016/0140-7007(91)90022-9
 20. Kim, S.H. and Anand, N.K., "Periodically Fully Developed Flow in Channels with Conducting Blockages," *AIAA Journal of Thermophysics and Heat Transfer*, Vol. 6, pp. 91-97, 1992. DOI:10.2514/3.323
 21. Anand, N.K., McFarland, A.R., Kihm, K.D., and Wong, F.S., "Optimization of Aerosol Penetration through Transport Lines," *Aerosol Science and Technology*, Vol. 16, pp. 105-112, 1992. DOI:10.1080/02786829208959541
 22. Anand, N.K., Kim, S.H., and Fletcher, L.S., "The Effect of Plate Spacing on Free Convection Between Heated Parallel Plates," *ASME Journal of Heat Transfer*, Vol. 114, pp. 515-518, 1992. DOI:10.1115/1.2911306
 23. Fan, B., McFarland, A.R., and Anand, N.K., "Characterization of the Aerosol Particle Lift Force," *Journal of Aerosol Science*, Vol. 23, pp. 379-388, 1992. DOI:10.1016/0021-8502(92)90007-1
 24. Fan, B.J., McFarland, A.R., and Anand, N.K., "Aerosol Particle Losses in Isokinetic Sampling Probe Inlets," *Environmental Science and Technology*, Vol. 26, pp. 390-394, 1992. DOI:10.1021/es00026a022
 25. Fan, B.J., Wong, F.S., McFarland, A.R., and Anand, N.K., "Aerosol Deposition in Sampling Probes," *Aerosol Science and Technology*, Vol. 17, pp. 326-332, 1992. DOI:10.1080/02786829208959579
 26. Choi, J.M. and Anand, N.K., "Heat Transfer in a Serpentine Channel with a Series of Right Angle Turns," *Numerical Heat Transfer, Part A*, Vol. 23, pp. 189-210, 1993. DOI:10.1080/10407789308913668
 27. Gong, H.G., Anand, N.K., and McFarland, A.R., "Numerical Prediction of Performance of Shrouded Probe Sampling in Turbulent Flow," *Aerosol Science and Technology*, Vol. 9, pp. 294-304, 1993. DOI:10.1080/02786829308959637
 28. Kim, S.H. and Anand, N.K., "Outflow Boundary Condition for Temperature Field in Channels with Periodically Positioned Heat Sources in the Presence of Wall Conduction," *Numerical Heat Transfer, Part B*, Vol. 25, pp. 163-176, 1994. DOI:10.1080/10407799408955915
 29. Kim, S.H. and Anand, N.K., "Turbulent Heat Transfer between a Series of Parallel Plates with Surface-Mounted Discrete Heat Sources," *ASME Journal of Heat Transfer*, Vol. 116, pp. 577-587, 1994. DOI:10.1115/1.2910909

30. Kim, S.H. and Anand, N.K., "Laminar Developing Flow and Heat Transfer Between a Series of Parallel Plates with Surface Mounted Discrete Heat Sources," *International Journal of Heat and Mass Transfer*, Vol. 37, pp. 2231-2244, 1994. DOI:10.1016/0017-9310(94)90366-2
31. Anand, N.K., Chin, C.D., and McMath, J.G., "Heat Transfer in Rectangular Channels with a Series of Normally In-Line Positioned Plates," *Numerical Heat Transfer, Part A*, Vol. 27, pp. 19-34, 1995. DOI:10.1080/10407789508913686
32. Chitti, M.S. and Anand, N.K., "An Analytical Model for Local Heat Transfer Coefficients for Forced Convective Condensation Inside Smooth Horizontal Tubes," *International Journal of Heat and Mass Transfer*, Vol. 38, pp. 615-627, 1995. DOI:10.1016/0017-9310(94)00201-6
33. Choi, J.M. and Anand, N.K., "Turbulent Heat Transfer in a Serpentine Channel with a Series of Right Angle Turns," *International Journal of Heat and Mass Transfer*, Vol. 38, pp.1225-1236, 1995. DOI:10.1016/0017-9310(94)00242-N
34. Kim, S.H. and Anand, N.K., "Laminar Heat Transfer Between a Series of Parallel Plates with Surface-Mounted Discrete Heat Sources," *ASME Journal of Electronic Packaging*, Vol. 117, pp. 52-62, 1995. DOI:10.1115/1.2792067
35. Chitti, M.S. and Anand, N.K., "Condensation Heat Transfer Inside Smooth Horizontal Tubes for R-22 and R32/R125 Mixture," *International Journal of HVAC&R Research*, Vol. 2, pp. 79-101, 1996. DOI:10.1080/10789669.1996.10391334
36. Choi, J.M., Anand, N.K., Lau, S.C., and Kukreja, R.T., "Heat (Mass) Transfer in a Serpentine Channel with a Series of Right Angle Turns," *ASME Journal of Heat Transfer*, Vol. 118, pp. 211-213, 1996. DOI:10.1016/0017-9310(94)00242-N
37. Muysshondt, A., Anand, N.K., and McFarland, A.R., "Turbulent Deposition of Particles in Large Transport Tubes," *Aerosol Science and Technology*, Vol. 24, pp. 107-116, 1996. DOI:10.1080/02786829608965356
38. Chitti, M.S. and Anand, N.K., "A Heat Transfer Correlation for Condensation Inside Horizontal Smooth Tubes Using the Population Balance Approach," *International Journal of Heat and Mass Transfer*, Vol. 39, pp. 2947-2956, 1996. DOI:10.1016/0017-9310(95)00365-7
39. Muysshondt, A., McFarland, A.R., and Anand, N.K., "Deposition of Aerosol Particles in Contraction Fittings," *Aerosol Science and Technology*, Vol. 24, pp. 205-216, 1996. DOI:10.1080/02786829608965364
40. Lopez, J.R., Anand, N.K., and Fletcher, L.S., "Heat Transfer in a Three-Dimensional Channel with Baffles," *Numerical Heat Transfer, Part A*, Vol. 30, pp. 189-205, 1996. DOI:10.1080/10407789608913835

41. Anand, N.K. and Chiiti, M.S., "Heat Transfer Aspects of Alternative Fluids in HVAC Systems," *Thermal Engineering and Science*, Published by The Heat Transfer Society of Japan, Vol. 4, pp. 107-115, 1996, Invited Paper.
42. Wong, F.S., McFarland, A.R., and Anand, N.K., "An Experimental Study of Aerosol Penetration through Horizontal Tubes and Strom-Type Loops," *Health Physics*, Vol. 71, pp. 886-895, 1996.
43. Watson, J.C., Anand, N.K., and Fletcher, L.S., "Mixed Convection Between a Series of Vertical Parallel Plates with Planar Heat Sources," *ASME Journal of Heat Transfer*, Vol. 118, pp. 984-990, 1996. DOI:10.1115/1.2822601
44. Gong, H., Chandra, S., McFarland, A.R., and Anand, N.K., "A Predictive Model for Aerosol Transmission through a Shrouded Probe," *Environmental Science & Technology*, Vol. 26, pp. 111-126, pp. 3192-3198, 1996. DOI: 10.1021/es9509083
45. Guo, Z. and Anand, N.K., "Three-Dimensional Heat Transfer in a Channel with a Baffle in the Entrance Region," *Numerical Heat Transfer, Part A*, Vol. 31, pp. 21-35, 1997. DOI: 10.1080/10407789708914023#.UZajMCvwJGN
46. McFarland, A.R., Gong, H.G., Muyschondt, A., Wentz, W.B., and Anand, N.K., "Aerosol Deposition in Bends with Turbulent Flow," *Environmental Science and Technology*, Vol. 31, pp. 3371-3377, 1997. DOI: 10.1021/es960975c
47. Kim, N., Anand, N.K., and Rhode, D.L., "A Study on Convergence Criteria for A SIMPLE-Based Finite - Volume Algorithm," *Numerical Heat Transfer, Part B*, Vol. 34, pp. 401-417, 1998. DOI: 10.1080/10407799808915065
48. McFarland, A.R., Anand, N.K., Ortiz, C.A., Gupta, R., Chandra, S., and McManigle, A.P., "A Generic Mixer for Achieving Suitable Conditions for Single Point Representative Sampling," *Health Physics*, Vol. 76, pp. 17-26, 1999.
49. Guo, Z. and Anand, N.K., "Condensation of R-410A In a Rectangular Channel," *International Journal of HVAC&R Research*, Vol. 5, pp. 99-123, 1999. DOI: 10.1080/10789669.1999.10391227
50. McFarland, A.R., Gupta, R., and Anand, N.K., "Suitability of Air Sampling Locations Downstream of Bends and Static Mixing Elements," *Health Physics*, Vol. 77, pp. 703-712, 1999.
51. Chintada, S., Kang-Hoon Ko, and Anand, N.K., "Heat Transfer in 3-D Serpentine Channels with Right-Angle Turns," *Numerical Heat Transfer, Part A*, Vol. 36, pp. 781-806, 1999. DOI: 10.1080/104077899274453
52. Kim, S.H. and Anand, N.K., "Use of Slots to Enhance Forced Convective Cooling Between Channels with Surface Mounted Heat Sources," *Numerical Heat Transfer, Part A*, Vol. 38, pp. 1-21, 2000. DOI: 10.1080/10407780050134947

53. Guo, Z and Anand, N.K., "An Analytical Model to Predict Condensation of R-410A in a Rectangular Channel," *ASME Journal of Heat Transfer*, Vol. 122, pp. 613-620, 2000. DOI: [10.1115/1.1286817](https://doi.org/10.1115/1.1286817)
54. Massoudi, M and Anand, N.K., "Numerical Simulation of Particulate Mixture Flows," *Journal of Energy, Heat and Mass Transfer*, Vol. 22, pp. 295-317, 2001.
55. Ko, Kang-Hoon and Anand, N.K., "Use of Porous Baffles to Enhance Heat Transfer in a Rectangular Channel," *International Journal of Heat and Mass Transfer*, Vol. 46, pp. 4191-4199, 2003. DOI: [10.1016/S0017-9310\(03\)00251-5](https://doi.org/10.1016/S0017-9310(03)00251-5)
56. Masoudi, M. and Anand, N.K., "A Theoretical Study of Heat Transfer to Flowing Granular Materials," *International Journal of Applied Mechanics and Engineering*, Vol. 9, pp.383-398, 2004.
57. Ravindran, P., Anand, N.K., and Massoudi, M., "Steady Free Surface Flow of a Fluid-Solid Mixture Down an Inclined Plane," *Particulate Science and Technology*, Vol. 22, pp. 253-273, 2004. DOI: [10.1080/02726350490501529](https://doi.org/10.1080/02726350490501529)
58. Miranda, B.M.D.S. and Anand, N.K., "Convective Heat Transfer in a Channel with Porous Baffles," *Numerical Heat Transfer, Part A*, Vol. 46, pp. 425-452, 2004. DOI: [10.1080/10407780490478515](https://doi.org/10.1080/10407780490478515)
59. H.M.S. Bahaidarah, Anand, N.K., and Chen, H.C., "Numerical Study of Heat and Momentum Transfer in Channels with Wavy Walls," *Numerical Heat Transfer, Part A*, Vol. 47, pp. 417-439, 2005. DOI: [10.1080/10407780590891218](https://doi.org/10.1080/10407780590891218)
60. J.G. Barbosa Saldana, N.K. Anand, and V. Sarin, "Forced Convection Over a Three-Dimensional Horizontal Backward Facing Step," *International Journal for Computational Methods in Engineering Science and Mechanics*, Vol. 6, pp. 225-234, 2005. DOI: [10.1080/155022891009107](https://doi.org/10.1080/155022891009107)
61. J.G. Barbosa Saldana, N.K. Anand, and V. Sarin, "Numerical Simulation of Mixed Convective Flow Over a Three-Dimensional Horizontal Backward Facing Step," *ASME Journal of Heat Transfer*, Vol. 127, pp. 1027-1036, 2005. DOI: [10.1115/1.2005272](https://doi.org/10.1115/1.2005272)
62. H.M.S. Bahaidarah, N.K. Anand, and H.C. Chen, "A Numerical Study of Flow and Heat Transfer Over a Bank of Flat Tubes", *Numerical Heat Transfer, Part A.*, Vol. 48, pp. 359-385, 2005. DOI: [10.1080/10407780590957134](https://doi.org/10.1080/10407780590957134)
63. H.M.S. Bahaidarah, M. Ijaz, and N.K. Anand "Numerical Study of Flow and Heat Transfer Over a Series of In-Line Non-Circular Tubes Confined in a Parallel Plate Channel," *Numerical Heat Transfer, Part B*, Vol. 50, pp. 97-119, 2006. DOI: [10.1080/10407790600599041](https://doi.org/10.1080/10407790600599041)
64. M. Ijaz and N.K. Anand, "Simulation of Unsteady Incompressible Viscous Flow Using Higher Order Implicit Runge-Kutta Methods-Staggered Grid," *Numerical Heat Transfer, Part B*, Vol. 52, pp. 471-488, 2007. DOI: [10.1080/10407790701563367](https://doi.org/10.1080/10407790701563367)

65. M. Ko and N.K. Anand, "Numerical Simulation of Three-Dimensional Combined Convective Radiative Heat Transfer-A Finite Volume Technique," *International Journal for Computational Methods in Engineering Science and Mechanics*, Vol. 8, pp. 429-437, 2007. DOI: [10.1080/15502280701606526](https://doi.org/10.1080/15502280701606526)
66. J.G. Barbosa Saldana and N.K. Anand, "Flow Over a Three-Dimensional Horizontal Forward-Facing Step", *Numerical Heat Transfer, Part A*, Vol. 53, pp. 1-17, 2008. DOI: [10.1080/10407780701446473](https://doi.org/10.1080/10407780701446473)
67. M. Ko and N.K. Anand, "Three-Dimensional Combined Convective Radiative Heat Transfer over a Horizontal Backward-Facing Step- A Finite Volume Method", *Numerical Heat Transfer, Part A*, Vol. 54, pp. 109-129, 2008. DOI: [10.1080/10407780802025721](https://doi.org/10.1080/10407780802025721)
68. J.D. MiCak, N.K. Anand, and M.J. Rightley, "Three-Dimensional Laminar Flow and Heat Transfer in a Parallel Array of Microchannels Etched on a Substrate," *International Journal of Heat and Mass Transfer*, Vol. 51, pp. 5182-5191, 2008. DOI: [10.1016/j.ijheatmasstransfer.2008.04.032](https://doi.org/10.1016/j.ijheatmasstransfer.2008.04.032)
69. M. Ijaz and N.K. Anand, "Co-located Variables Approach Using Implicit Runge-Kutta Methods for Unsteady Incompressible Flow Simulation," *Numerical Heat Transfer, Part B*, Vol. 54, pp. 291-313, 2008. DOI: [10.1080/10407790802358899](https://doi.org/10.1080/10407790802358899)
70. J. G. Barbosa Saldana, V. Sarin, and N. K. Anand, "Parallelization of a SIMPLE based Algorithm to Simulate Mixed Convective Flow Over a Backward Facing Step," *Numerical Heat Transfer, Part B*, Vol. 56, pp. 105-118, 2009. DOI: [10.1080/10407790903126658](https://doi.org/10.1080/10407790903126658)
71. T. L. Fullerton and N. K. Anand, "Periodically Fully-Developed Flow and Heat Transfer Over Flat and Oval Tubes Using Control Volume Finite-Element Method," *Numerical Heat Transfer, Part A*, Vol. 57, pp. 642-665, 2010. DOI: [10.1080/10407781003744888](https://doi.org/10.1080/10407781003744888)
72. T. L. Fullerton and N. K. Anand, "An Alternative Approach to Study Periodically Fully-Developed Flow and Heat Transfer Problems Subject to Isothermal Heating Conditions," *International Journal of Engineering Science*, Vol. 48, pp. 1253-1262, 2010. DOI: [10.1016/j.ijengsci.2010.07.012](https://doi.org/10.1016/j.ijengsci.2010.07.012)
73. Pratanu Roy, N. K. Anand, and D. Banerjee, "Numerical Simulation of Flow and Heat Transfer in Radially Rotating Microchannels," *Journal of Microfluidics and Nanofluidics*, Vol. 15, pp. 1-17, 2013. DOI [10.1007/s10404-013-1159-z](https://doi.org/10.1007/s10404-013-1159-z)
74. Pratanu Roy, N. K. Anand, and D. Banerjee, "Liquid Slip and Heat Transfer in Rotating Rectangular Microchannels," *International Journal of Heat and Mass Transfer*, Vol. 62, pp. 184-199, 2013. ISSN 0017-9310, DOI: [10.1016/j.ijheatmasstransfer.2013.02.043](https://doi.org/10.1016/j.ijheatmasstransfer.2013.02.043).

75. Pratanu, Roy, N. K. Anand, and Diego Donzis, "A Parallel Multigrid Finite Volume Solver in Collocated Grid for Incompressible Navier-Stokes Equations," *Numerical Heat Transfer, Part B, Fundamentals*, Vol. 67, pp. 376-409, 2015, DOI: [10.1080/10407790.2014.985980](https://doi.org/10.1080/10407790.2014.985980)
76. Kyle L. McVay, Jae-Hyung Park, Saya Lee, Yassin A. Hassan, N. K. Anand. "Preliminary Tests of Particle Image Velocimetry for the Upper Plenum of a Scaled Model of a Very High Temperature Gas Cooled Reactor." *Progress in Nuclear Energy*, Vol. 83, pp. 305-307, 2015, DOI [10.1016/j.pnucene.2015.04.004](https://doi.org/10.1016/j.pnucene.2015.04.004)
77. Han, Li, N. K. Anand, and Y. A. Hassan, "Computational Study of Turbulent Flow Interaction between Twin Rectangular Jets," *International Journal of Heat and Mass Transfer*, Vol. 119, Pages 752–767, 2018, <https://doi.org/10.1016/j.ijheatmasstransfer.2017.12.008>
78. M. Delgado, S. Lee, Y. A. Hassan, and N. K. Anand, "Flow Visualization Study at the Interface of Alternating Pitch Tube Bundles in a Model Helical Coil Steam Generator using Particle Image Velocimetry ", *International Journal of Heat and Mass Transfer*, Vol. 122, pp. 614-628, 2018, <https://doi.org/10.1016/j.ijheatmasstransfer.2018.02.014>
79. Han Li, N.K. Anand, Yassin A. Hassan, and Thien Nguyen, "Large Eddy Simulations of the Turbulent Flows of Twin Parallel Jets," *International Journal of Heat and Mass Transfer*, Vol. 129, pp. 1263-1273, 2019, <https://doi.org/10.1016/j.ijheatmasstransfer.2018.10.069>
80. M. Delgado, Y. A. Hassan, and N. K. Anand, "Experimental flow visualization study using particle image velocimetry in a helical coil steam generator with changing lateral pitch geometry," *International Journal of Heat and Mass Transfer*, Vol. 133, pp. 756-768, 2019, <https://doi.org/10.1016/j.ijheatmasstransfer.2018.12.152>
81. Thien Nguyen, Robert Muyschondt, Y. Hassan, and N. K. Anand "Experimental investigation of cross flow mixing in a randomly packed bed and streamwise vortex characteristics using particle image velocimetry and proper orthogonal decomposition analysis" accepted for publication in *Physics of Fluids*.

OTHER PUBLICATIONS

Book Chapters

Anand, N.K., "Finite Volume Approach to Heat Transfer/Fluid Flow Problems," Heat Transfer Handbook, Section 401.3, pp.1-16, Genium Publication, Schenectady, NY, 1998.

Conference Publications

1. **Anand, N.K.** and Tree, D.R., "Steady State Simulation of Single Tube-Finned Condenser Heat Exchanger," ASHRAE Annual Meeting, Toronto, Canada, Paper #2710, 1982.
2. **Anand, N.K.**, Chen, S.C., and Tree, D.R., "Numerical Solution to Transient Laminar Convective Heat Transfer Inside a Circular Duct," #B.1-107 *Proceedings of XVI International Refrigeration Congress*, presented at the XVI International Refrigeration Congress, 1983, Paris, France.
3. **Anand, N.K.** and Tree, D.R., "Some Studies of Effects of Axial Conduction in a Tube Wall on the Steady-State Laminar Convective Heat Transfer," WA/HT-24, ASME Winter Annual Meeting, Boston, Massachusetts, 1983.
4. Chellaiah, S., Viskanta, R., Ranganathan, P., and **Anand, N.K.**, "Analysis of Core and Core Barrel Heat-Up under Conditions Simulating Severe Reactor Accidents," 257, Vol. 83, pp. 314-319, 24th AIChE/ASME National Heat Transfer Conference, Pittsburgh, Pennsylvania, *AIChE Symposium Series*.
5. McFarland, A.R., **Anand, N.K.**, Ortiz, C.A., Moore, M.E., Kim, S.H., DeOtte, R.E., Jr. and Somasundaram, S., "Continuous Air Sampling for Radioactive Aerosol," *Proceedings of the 20th DOE/NRC Nuclear Air Cleaning Conference*, NUREG/CP-0098, CONF-880822, Vol. 2, pp. 834-846, 1988, presented at the 20th DOE/NRC Nuclear Air Cleaning Conference, Boston, Massachusetts.
6. **Anand, N.K.**, Schliesing, J.S., O'Neal, D.L., and Peterson, K.T., "Effects of Outdoor Coil Fan Pre-Start on Pressure Transients During the Reverse Cycle Defrost of a Heat Pump," ASHRAE Annual Meeting, Vancouver, British Columbia, VA-89-9-2, 1989.
7. O'Neal, D.L., Peterson, K.L., **Anand, N.K.**, and Schliesing, J.S., "Refrigeration System Dynamics During the Reverse Cycle Defrost," ASHRAE Annual Meeting, Vancouver, British Columbia, VA-89-9-1, 1989.
8. Kim, S.H., **Anand, N.K.**, and Fletcher, L.S., "Free Convection Between a Series of Vertical Parallel Plates With Embedded Line Heat Sources," ASME Winter Annual Meeting, San Francisco, California, ASME-HTD-Vol. 121, pp. 7-16, 1989.
9. Choi, J.M., **Anand, N.K.**, and Laster, W.R., "Conjugate Heat Transfer in a U-Shaped Channel with Two Right Angle Turns," *Proceedings of the Ninth International Heat Transfer Conference*, Jerusalem, Israel, Vol. 3, pp. 297-302, 8-MC-06, 1990.
10. **Anand, N.K.**, Kim, S.H., and Fletcher, L.S., "The Effect of Plate Spacing on Free Convection Between Heated Parallel Plates," ASME Winter Annual Meeting, Dallas, Texas, ASME-HTD-Vol. 153, pp. 81-87, 1990.

11. Choi, J.M. and **Anand, N.K.**, "Heat Transfer in a Serpentine Channel with a Series of Right Angle Turns," ASME Winter Annual Meeting, Atlanta, Georgia, ASME-HTD-Vol. 180, pp. 91-99, 1991.
12. Kim, S.H. and **Anand, N.K.**, "Turbulent Heat Transfer Between a Series of Parallel Plates with Surface-Mounted Discrete Heat Sources," ASME Winter Annual Meeting, Anaheim, California, ASME-HTD-Vol. 210, pp. 43-57, 1992.
13. Choi, J.M., **Anand, N.K.**, and Lau, S.C., "Turbulent Heat Transfer Measurement and Numerical Prediction in a Serpentine Channel," 93-WA/HT-51, International Mechanical Engineering Congress and Exposition, New Orleans, Louisiana, 1993.
14. Kim, S.H. and **Anand, N.K.**, "Laminar Heat Transfer Between a Series of Parallel Plates with Surface Mounted Discrete Heat Sources," International Mechanical Engineering Congress and Exposition, Chicago, Illinois, ASME-HTD-Vol. 292, pp. 55-70, 1994.
15. Talik, A.C., Swanson, L.W., Fletcher, L.S., and **Anand, N.K.**, "Heat Transfer and Pressure Drop Characteristics of a Plate Heat Exchanger," Proceedings of the ASME-JSME Thermal Engineering Conference, Lahina, Maui, Hawaii, Vol. 4, pp. 321-330, 1995.
16. Talik, A.C., Swanson, L.W., Fletcher, L.S., and **N.K. Anand**, "Heat Transfer and Pressure Drop Characteristics of a Plate Heat Exchanger Using a Propylene-Glycol/Water Mixture As the Working Fluid" Proceedings of the 30th National Heat Transfer Conference, Portland, Oregon, ASME-HTD-Vol. 314, pp. 83-88, 1995.
17. Watson, J.C., **Anand, N.K.**, and Fletcher, L.S., "Mixed Convection Heat Transfer Between A Series of Vertical Parallel Plates with Planar Heat Sources," International Mechanical Congress and Exposition, San Francisco, California, ASME-HTD-Vol. 317-1, pp. 401-412, 1995.
18. Lopez, J.R., **Anand, N.K.**, and Fletcher, L.S., "Numerical Model of Laminar Flow Convective Heat Transfer in a Three-Dimensional Channel with Baffles," Proceedings of the 2nd ISHMT-ASME Heat and Mass Transfer Conference, Surathkal, India, pp. 463-470, 1995.
19. **N.K. Anand** and S.H. Kim, "Heat Transfer in Channels Simulating Cooling Passages of Electronic Components," Engineering Technology, Book IV, pp. 60-73, 1996.
20. J.G. Barbosa Saldana, **N.K. Anand**, and V. Sarin, "Numerical Simulation of Mixed Convective Flow Over a Three-Dimensional Horizontal Backward Facing Step," Accepted for presentation at the ASME Heat Transfer/Fluids Engineering Summer Conference, Charlotte, North Carolina, July 11-14, 2004.
21. M. Ijaz and **N. K. Anand**, "Simulation of Unsteady Incompressible Viscous Flow Using Higher Order Implicit Runge-Kutta Methods-Staggered Grid," HT2007-32486,

- ASME-JSME Thermal Engineering Conference Summer Heat Transfer Conference, Vancouver, BC, Canada, July 8-12, 2007.
22. M. Ijaz and **N.K. Anand**, “Co-located Variables Approach in SIMPLE DIRK Method for Simulation of Unsteady Incompressible Viscous Flows” – Paper US 34, The 19th National & 8th ISHMT-ASME Heat and Mass Transfer Conference, Hyderabad, India, January 3-5, 2008.
 23. P. Roy, **N. K. Anand**, and D. Banerjee, “A numerical Study of Unsteady Laminar Flow and Heat Transfer through an Array of Rotating Rectangular Microchannels,” IMECE2011-64745, ASME International Mechanical Engineering Congress and Exposition, Denver, Colorado, November 11-17, 2011.
 24. P. Roy, **N. Anand**, D. Banerjee, “Numerical Investigation of Slip Flow and Heat Transfer in Rotating Microchannels,” ASME 2012 Summer Heat Transfer Conference, Puerto Rico, HT 2012-58507, July 8-12, 2012.
 25. P. Roy, **N. K. Anand**, and D. Banerjee, “A Review of Flow and Heat Transfer in Rotating Microchannels,” Invited Keynote Lecture, 5th BSME International Conference on Thermal Engineering, Ghazipur, Dhaka, Bangladesh, December 21-23, 2012. Procedia Engineering, Vol. 56, pp. 7–17, 2013.
 26. Kyle L. McVay, Jae Hyung Park, Saya Lee, Yassin A. Hassan, N. K. Anand, 'Experimental Design and Flow Visualization for the Upper Plenum of a Scaled VHTR,' American Nuclear Society conference winter meeting, Nov. 9-13, 2014, Anaheim, CA.
 27. Jae Hyung Park, Kyle McVay, Saya Lee, Y. A. Hassan and N. K. Anand, 'An Experimental Study of Coolant Flow Mixing within Scaled Model of the Upper Plenum of VHTR,' *The 10th International Topical Meeting on Nuclear Thermal-Hydraulics, Operation and Safety (NUTHOS-10)*, Dec. 14-18, 2014, Okinawa, Japan.
 28. Jae Hyung Park, Anas Alwafi, Saya Lee, Yassin A. Hassan, N. K. Anand. “Particle Image Velocimetry on a Single Buoyant Plume of the Very High Temperature Gas-Cooled Reactor,” *2015 the American Nuclear Society (ANS) Winter Meeting*, Washington, DC, USA, November 8-12, 2015.
 29. Anas Alwafi, Jae Hyung Park, Saya Lee, Carlos Estrada-Perez, N. K. Anand, Yassin A. Hassan, “Study of the Flow at the Upper Plenum of a Scaled VHTR using PTV,” *17th International Conference on Emerging Nuclear Energy Systems (ICENES) 2015*, Istanbul, Turkey, October 4-8, 2015.
 30. Anas Alwafi, Thien Nguyen, N. K. Anand, Yassin Hassan, “Time-Resolved Particle Image Velocimetry Measurements and Proper Orthogonal Decomposition Analysis of Jet Impingement in a HTGR Upper Plenum,” *Transactions of the American Nuclear Society*, Vol. 118, pp. 1120-1122, Philadelphia, Pennsylvania, June 17–21, 2018.
 31. Han Li, N. K. Anand, Yassin A. Hassan, “Large Eddy Simulations on Turbulent

Flow of Twin Parallel Jets”, Transactions of the American Nuclear Society, Vol. 118, pp. 1234-1237, Philadelphia, Pennsylvania, June 17–21, 2018.

Presentations

1. "Steady State Simulation of Single Tube-Finned Condenser Heat Exchanger," ASHRAE Annual Meeting, Toronto, Canada, 1982.
2. "Free Convection Between a Series of Vertical Parallel Plates With Embedded Line Heat Sources," ASME Winter Annual Meeting, San Francisco, California, 1989.
3. "The Effect of Plate Spacing on Free Convection Between Heated Parallel Plates," ASME Winter Annual Meeting, Dallas, Texas, 1990.
4. "Heat Transfer in a Serpentine Channel with a Series of Right Angle Turns," ASME Winter Annual Meeting, Atlanta, Georgia, 1991.
5. "Turbulent Heat Transfer Between a Series of Parallel Plates with Surface-Mounted Discrete Heat Sources," ASME Winter Annual Meeting, Anaheim, California, 1992.
6. "Turbulent Heat Transfer Measurement and Numerical Prediction in a Serpentine Channel," International Mechanical Engineering Congress and Exposition, New Orleans, Louisiana, 1993.
7. "Heat Transfer in Serpentine Channels," Society of Engineering Sciences Meeting, October 12, 1994, College Station, Texas.
8. "Laminar Heat Transfer Between a Series of Parallel Plates with Surface Mounted Discrete Heat Sources," International Mechanical Engineering Congress and Exposition, Chicago, Illinois, 1994.
9. "Sampling of Stacks and Ducts: Probes and Transport Systems," presented to PANTEX Consortium on Plutonium Aerosols, September 10, 1995, Santa Fe, New Mexico.
10. "Mixed Convection Heat Transfer Between a Series of Vertical Parallel Plates with Planar Heat Sources," International Mechanical Congress and Exposition, San Francisco, California, 1995.
11. "Numerical Model of Laminar Flow Convective Heat Transfer in a Three-Dimensional Channel with Baffles," 2nd ISHMT-ASME Heat and Mass Transfer Conference, Surathkal, India, December 28-30, 1995.
12. Guo, Z. and Anand, N.K., "Condensation of R-410A in a Rectangular Channel," ASHRAE Winter Meeting, Dallas, Texas, February 8, 2000, #4348.
13. H.M.S. Bahaidarah, N.K. Anand, and H.C. Chen, "Flow and Heat Transfer Over a Series of In-Line Cylinders Confined in a Channel," Society of Engineering Sciences 41st Annual Meeting, October 11-14, 2004, Lincoln, NE.
14. University Partnerships Panel, Sandia Student Internship Program Symposium, Albuquerque, NM, August 7, 2007.

15. "Higher Order Implicit Runge- Kutta Methods to Simulate Unsteady Incompressible Viscous Flows," Sandia National Laboratories, Albuquerque, NM, August 8, 2007.
16. "Publishing Your Research," Fifth LSAMP, Annual Symposium, Corpus Christi, TX, February 20, 2009.
17. A Review of Flow and Heat Transfer in Rotating Microchannels," Invited Keynote Lecture, 5th BSME International Conference on Thermal Engineering, Ghazipur, Dhaka, Bangladesh, December 21-23, 2012

Book Volumes Edited

1. "Heat Transfer in Turbulent Flows," ASME-HTD-Vol. 138, edited by Amano, R.S. Crawford, M.E., and **Anand, N.K.**, June, 1990
2. "Heat Transfer in Turbulent Flows," ASME-HTD-Vol. 246, edited by Amano, R.S., Pletcher, R.H., Sherif, S.A., Watts, R.G., and **Anand, N.K.**, August 1993.
3. "Heat Transfer in Turbulent Flows," ASME-HTD-Vol. 318, edited by **Anand, N.K.**, Amano, R.S., and Armaly, B.F., November 1995.
4. "Heat Transfer in Turbulent Flows," ASME-HTD-Vol. 333, pp. 1-91, edited by, D. Wroblewski, **N.K. Anand**, and R. Pletcher, November 1996.

Technical Reports (Limited to Final Reports)

1. "Validation and Refinement of a Dynamic Digital Model of a Fan Coil Heating System," M.S Thesis, Kansas State University, December 1979. (Advisor: J.G. Thompson)
2. Thompson, J.G., Azer, N.Z., Chen, P.N., Nguyen, V.K., **Anand, N.K.**, and Desai, N.V., "The Effect of Room and Control System Dynamics on Energy Consumption," Mechanical Engineering, Kansas State University, Technical Report RP#212, 1/80.
3. **Anand, N.K.** and Tree, D.R., "Steady State Simulation of the Fin and Tube Heat Exchanger Air Conditioning Application," Herrick Laboratories Report #HL 82-1, 4, 1982, School of Mechanical Engineering, Purdue University.
4. "Numerical Simulation of Single Tube Heat Exchangers," Ph.D. Thesis, Purdue University, August 1983. (Advisor: D.R. Tree)
5. **Anand, N.K.** and McFarland, A.R., "Particle Penetration Through CAM-Sampler Aerosol Transport Lines," Aerosol Technology Report 5897/01/04/88/NKA, Texas A&M University.
6. **Anand, N.K.**, Somasundaram, S., and Lovelady, J.P., "The Design, Construction, and

- Calibration of a Heat Exchanger Calorimeter," Energy Systems Laboratory Report, TAMU, ESL/Con/88-2.
7. O'Neal, D.L., **Anand, N.K.**, Peterson, K.T., and Schliesing, J.S., "Determination of the Transient Response Characteristics of the Air-Source Heat Pump During the Reverse Cycle Defrost," Energy Systems Laboratory Report, TAMU ESL/88-05R, ASHRAE-479-TRP.
 8. McFarland, A.R., **Anand, N.K.**, Khim, K.D., Ortiz, C., Wong, F.S., and Kettleborough, C.F., "Aerosol Aspects of Mist Lubrication," Turbomachinery Laboratories, TAMU, TRC-TR-5-89 #901.
 9. **Anand, N.K.**, McFarland, A.R., Wong, F.S., and Kocomoud, C.J., "DEPOSITION: Software to Calculate Particle Penetration Through Aerosol Transport Lines," NUREG/GR-0006, U.S. NRC Final Report, 1993
 10. Talik, A.C., Fletcher, L.S., and **Anand, N.K.**, "Heat Transfer and Pressure Drop Characteristics of a Plate Heat Exchanger," CHTL-4421-1, submitted to HTRI, 1995.
 11. **Anand, N.K.**, Burdick, S., and Griffin, J., "Debugging and Benchmarking of COYOTE Code," submitted to the Sandia National Laboratories, December 1997.
 12. **Anand, N.K.** and Guo, Z., "Condensation of R-410A in a Horizontal Rectangular Channel," EPRI, Palo Alto, California, TR-111754, 1998.

SOFTWARE COPYRIGHT:

Anand, N.K., McFarland, A.R., Wong, F.S., Kocmoud, C.J., DEPOSITION: Software to Calculate Particle Penetration Through Aerosol Transport Systems, Copyrighted through TEES, 1993.

GRADUATE STUDENT RESEARCH ADVISING:

Doctorate:

1. Kim, S.H., "Numerical Analysis of Convective Heat Transfer in Channels Simulating Electronic Components," May 1993.
2. Choi, J.M., "Heat Transfer in Serpentine Channels with a Series of Right Angle Turns," December 1993.
3. Fan, B., "Particle Lift Force and Particle Behavior in Suspension Flows,"(Co-Chair: A.R. McFarland), 1994.
4. Chitti, M.S., "Condensation of a New Alternative Refrigerant Flowing Inside

- Horizontal Smooth Tubes," August 1994.
5. Muyschondt, A., "Aerosol Deposition in Transport Lines," December 1995, (Co-Chair: A.R. McFarland).
 6. Gong, H., "Numerical Prediction of Shrouded Probe Sampling Performance and a Study of Subgrid Scale Models in Large Eddy Simulation," May 1996, (Co-Chair: A.R. McFarland).
 7. Guo, Z., "Condensation of R410A in a Horizontal Rectangular Channel," August 1998.
 8. Gupta, R., "Mixing Studies for Single Point Sampling," May 1999, (Co-Chair: A.R. McFarland)
 9. Bahaidarah, H.M.S., " A Numerical Study of Heat and Momentum Transfer Over a Bank of Flat Tubes," August 2004, (Co-Chair: H.C. Chen)
 10. Ko, Kang-Hoon, "Heat Transfer in Rectangular Channels with Porous Baffles", December 2004.
 11. Barbosa Saldana, Juan Gabriel, "Numerical Simulation of Mixed Convection over a Three-Dimensional Horizontal Backward- Facing Step", May 2005, (Co-Chair: V.Sarin).
 12. Ijaz, M., "Implicit Runge-Kutta Methods to Simulate Unsteady Incompressible Flows", December 2007.
 13. Ko, M., "Numerical Simulation of Three-Dimensional Combined Convective Radiative Heat Transfer in Rectangular Channels," December 2007.
 14. Fullerton, T. L., "Numerical study of Convective Heat Transfer in Flat Tube Heat Exchangers Operating in Self-Sustained Oscillatory Flow Regimes," December 2011.
 15. Roy, P. , " Numerical Study of Flow and Heat Transfer in Rotating Micro-Channels," December 2014, (Co-Chair: D. Banerjee)
 16. Park, Jae Hyung, "Natural Convection Circulation in the Upper Plenum of a Scaled Model of Very High Temperature Reactor in the Event of Loss-of-Coolant Accident," August 2016, (Co-Chair: Yassin Hassan).
 17. Li, Han, "Computational Study on the Interaction between Twin Rectangular Jets," December 2018 (Co-Chair: Yassin Hassan)

Masters:

1. Fithen, R.M., "Finite Element Analysis of Conjugate Heat Transfer in Axisymmetric Pipe Flows, "August 1987.
2. Schliesing, J.S., "The Effect of Alternate Defrost Strategies on the Reverse-Cycle Defrost of an Air-Source Heat Pump," June 1988.
3. Lovelady, J.P., "The Design, Construction and Calibration of a Heat Exchanger

Calorimeter," December 1988.

4. McMath, John, "Numerical Analysis of Laminar Flow and Heat Transfer in a Parallel Plate Channel with Normally In-Line Positioned Plates," December 1991.
5. Nandi, Asis, "Design and Development of a Cooling Device for Solid Polymer Electrolyte Fuel Cells," December 1991.
6. Wong, Fermin, "Optimization of Aerosol Penetration through Aerosol Transport Lines," May 1992, (Co-Chair: A.R. McFarland).
7. Watson, J.C., "A Numerical Analysis of Mixed Convection Between a Series of Parallel Plates," May 1995.
8. Lopez, J.R., "A Numerical Analysis of Laminar Convective Heat Transfer in a Three-Dimensional Channel with Baffles," December 1995, (Co-Chair: L.S. Fletcher).
9. Dileep, V.R., "Aerosol Penetration through Transport Lines," December 1996, (Co-Chair: A.R. McFarland).
10. Chintada, S., "Numerical Study of Flow and Heat Transfer in 3-D Serpentine Channels Using Collocated Grids," December 1998.
11. Miranda, B., "A Numerical Study of Convection in a Channel with Porous Baffles," December 2003.
12. MiCak, J. D., "Simulation of Three –Dimensional Laminar Flow and Heat Transfer in an Array of Parallel Micro-channels," May 2007.

FUNDED RESEARCH PROGRAMS:

External

1. "Determination of the Transient Response Characteristics of the Air Source Heat Pump During the Reverse Cycle Defrost," Co-PIs: N.K. Anand and D.L. O'Neal, funded by ASHRAE, 479-TRP, 09/01/86-06/15/88, \$77,582, Prorated Share: \$38,791.
2. "Design Criteria for Isokinetic Sampling," PI: A.R. McFarland, Co-PIs: W.D. Turner, N.K. Anand, D.L. O'Neal, and S. Somasundaram, funded by Westinghouse Electric Corporation, 12/15/87-10/31/88, \$326,000, Prorated Share: \$50,000.
3. "Optimization of Aerosol Penetration Through Transport Lines," PIs: A.R. McFarland and N.K. Anand, funded by U.S. Nuclear Regulatory Commission, NRC-4-89-353, 09/01/89-08/31/92, \$153,218, Prorated Share: \$76,609.
4. "Thermal Management of High Power Density Fuel Cells," PI: S. Srinivasan, Co-PI: N.K. Anand, funded by Texas Higher Education Coordinating Board, ERAP, 32121-70340, 09/01/89-08/31/92, \$153,303, Prorated Share: \$76,651.
5. "Transport Properties of Advanced Non-CFC Refrigerants," Co-PIs: D.L. O'Neal and

- N.K. Anand, funded by Texas Higher Education Coordinating Board, ATP, 32131-70640, 01/01/90-08/31/92, \$115,000, Prorated Share: \$57,500.
6. "Sampling and Transport of Radioactive Aerosol Particles," Co-PIs: A.R. McFarland, and N.K. Anand, funded by the U.S. Nuclear Regulatory Commission, NRC-04-92-080, RES-C92-219, 09/14/92-09/13/94, \$99,913, Prorated Share: \$49,956.
 7. "Design and Optimization of Serpentine Channel Heat Exchangers," PI: N.K. Anand, funded by NASA Center for Space Power, RF250009, 09/01/92-08/31/93, \$7,264.
 8. "Transport Properties of R32/R125 Mixture," ASHRAE Grant-in-Aid, PI: N.K. Anand, 06/01/93-12/31/93, \$7500.
 9. "An Experimental and Analytical Study of Plate Heat Exchanger (PHE) Units," PI: N.K. Anand, funded by HTRI, 32525-44210, 01/15/94-05/30/95, \$20,000.
 10. "Representative Effluent Sampling Studies for Rocky Flats," PI: N.K. Anand, funded by EG&G Rocky Flats through A.R. McFarland, Ph.D., P.E, 32525-44480, 03/15/94-10/31/94, \$111,231.
 11. "Sampling and Transport of Radio Nuclides from Stacks and Ducts," PIs: N.K. Anand and A.R. McFarland, funded by U.S. Nuclear Regulatory Commission, NRC-04-94-099, 10/01/94-08/31/98, \$130,903, Prorated Share: \$65,450.
 12. "ITRI Wind Tunnel," PI: N.K. Anand, funded by Inhalation and Toxicology Institute through A.R. McFarland, Ph.D., P.E., 32525-46130, 11/01/94-05/31/96, \$48,909.
 13. "Scale - Model Mixing Studies," PI: N.K. Anand, and Co-PI: M.J. Andrews, funded by EG&G Rocky Flats through A.R. McFarland, Ph.D., P.E., 32525-44480, 01/01/95-03/31/96, \$195,983, Prorated Share: \$138,970.
 14. "Debugging and Benchmarking of COYOTE Code," PI: N.K. Anand, funded by Sandia National Laboratories, Albuquerque, New Mexico, 32525-49070, 03/01/96-08/31/97, \$29,267.
 15. "Design and Evaluation of Single Point Representative Sampling Systems for Radio Nuclide Aerosols," PI: N.K. Anand, funded by Kaiser-Hill, Rocky Flats Environmental Technology Site, Golden, Colorado through A.R. McFarland, Ph.D., P.E., 32525-44480C, 01/01/96-08/31/96, \$146,154.
 16. "Condensation of an Azeotropic Refrigerant Mixture in Rectangular Channels," PI: N.K. Anand, funded by Electric Power Research Institute, Palo Alto, California, 32525-49940, 08/01/96-05/31/98, \$96,309.
 17. "Representative Effluent Sampling of Air Emissions from Stacks and Ducts at Rocky Flats Environmental Technology Site," PI: N.K. Anand, funded by Kaiser-Hill, Rocky Flats Environmental Technology Site, Golden, Colorado through A.R. McFarland, Ph.D., P.E., 32525-4448D, 02/01/97-05/31/98, \$297,154.
 18. "Air Sampling Studies," PIs: A.R. McFarland and N.K. Anand, funded by

- Westinghouse Corporation, Savannah River, Georgia, RF430361, 07/24/95-09/30/98, \$131,049, Prorated Share: \$65,500.
19. "Design and Analysis of Cyclone Aerosol Collectors and Aerosol Inlets," PIs: A.R. McFarland and N.K. Anand, funded by U.S. Army, 32215-5647, 01/01/99-04/30/99, \$110,742, Prorated Share: \$18,457.
 20. "Flow of Granular Materials Over an Inclined Surface," PI: N.K. Anand, one (1) Summer month (07/16/00-08/11/00) salary support from U.S. DOE, NETL, Pittsburgh through ORISE Program.
 21. "Flow of Granular Materials Over an Inclined Surface," PI: N.K. Anand, one (1) Summer month (07/05/01-08/01/01) salary support from U.S. DOE, NETL, Pittsburgh through ORISE Program.
 22. "Modeling of Flow of Particulate Infused in Fluids", Co-PIs: K.R. Rajagopal and N. K. Anand, funded by U.S. DOE under the auspices of University Research Partnership Program, 1/1/02-12/31/04, , \$210,000, Prorated Share: \$105,000.
 23. "Packaging of Chemical Nano-Particle Nucleation Reactor", PI: N. K. Anand, funded by the Sandia Laboratories, 9/1/05-12/31/06, \$40,658.
 24. "Experimental and CFD Studies of Coolant Flow Mixing Within Scaled Models of the Upper and Lower Plenum of a Prismatic Core VHTR," PI: Y. Hassan and Co-PI: N. K. Anand, funded by the Battelle Energy Alliance, LLC, Idaho National Laboratory, 9/1/12-9/1/15, \$458,552 , Prorated Share: \$165,501.
 25. "Post Accident Heat Removal System Development and Testing," PI: Y. Hassan and Co-PI: N. K. Anand, funded by AREVA Federal Services, 5/1/15-4/30/17, \$215,961, Prorated Share: \$18,565.
 26. "Toward a Longer Life Core: Thermohydraulic CFD Simulations and Experimental Investigation of Deformed Fuel Assemblies for Sodium Fast Reactor," PI: R. Vaghetto, Co-PI: N. K. Anand, funded by AREVA Federal Services, 2/9/15-2/8/17, \$519,401, Prorated Share: \$19,759.
 27. "Advanced CFD Methods" PI: Y. A. Hassan, Co-PI: N. K. Anand, funded by UT-Battelle, LLC, 3/1/2017- 2/29/2018, \$100,000, Prorated Share: \$50,000.
 28. "Spatiotemporally Resolved Multiscale Measurements of Single- and Multi-Phase Flows Using State-Of-The-Art System of X-ray Tomography and Optical Sensors", PI: D. Nguyen, Co-PI: N. K. Anand, Funded by Department of Energy, 10/1/17-9/30/18, \$235,985, Prorated Share: 0%; Infrastructure Grant
 29. "Helical-Coil Steam Generator Investigation for SMR", PI: Y. A. Hassan, Co-PI: N. K. Anand, funded by UChicago Argonne National Laboratories, 10/2/15-9/30/18, \$400,000, Prorated Share: \$100,000
 30. "Development of Innovative Measurement Techniques for Fission Product

Transport Quantification," PI: N. K. Anand, Co-PIs: Duy Thien, Rodolfo Vaghetto, and Y.A. Hassan, funded by Idaho National Laboratories, 10/1/18-9/30/19, \$249,982, Prorated Share: \$62,495.

Internal

1. "Design, Construction, and Calibration of Air to Refrigerant Heat Exchanger Calorimeter," Co-PI: S. Somasundaram and N.K. Anand, funded by Energy Systems Laboratories Research Consortium, Texas A&M University, 09/01/86-08/31/88, \$30,000, Prorated Share: \$15,000.
2. "Analysis of Moisture Migration in a Two-Dimensional Porous Media," Co-PIs: N.K. Anand and S. Somasundaram, funded by Center for Energy and Mineral Resources, Texas A&M University, 09/01/86-08/31/88, \$22,100, Prorated Share: \$11,050.
3. "Upgrading of a Heat Exchanger Test Loop," PI: N.K. Anand, funded by TAMU Mini-Grant Committee, 09/01/86-08/31/87, \$500.
4. "Heat Transfer in Channels with Surface Mounted Heat Sources," PI: N.K. Anand, funded by Engineering Excellence Fund, TAMU, 01/15/87-08/31/88, \$15,946.
5. "Simulation and Validation of Refractory Material Based Heat Recovery Systems," Co-PIs: W.R. Laster and N.K. Anand, funded by Center for Energy and Mineral Resources, TAMU, 09/01/88-08/31/89, \$11,500, Prorated Share: \$5,750.
6. "Modeling of Fan Performance Characteristics," Co-PIs: M. Glass and N.K. Anand, funded by Center for Energy and Mineral Resources, Texas A&M University, 09/01/89-08/31/90, \$19,800, Prorated Share: \$9,900.
7. "Design and Optimization of Serpentine Channel Heat Exchangers," PI: N.K. Anand, funded by the Center for Energy and Mineral Resources, TAMU, 09/01/92-08/31/93, \$16,960.
8. "An Innovative Approach to Enhance Heat Transfer in Rectangular Channels," PI: N.K. Anand, Student: Che-Doong Chin, funded by TEES Undergraduate Research Grants Program, TAMU, 06/01/93-08/31/93, \$2,500.
9. "A Periodic Impingement Technique for Heat Transfer Enhancement," ERP 94-13, Co-PIs: N.K. Anand and S.C. Lau, funded by Energy Resources Program, TAMU, 09/01/94-08/31/95, \$25,000, Prorated Share: \$12,500.
10. "Turbulent Heat Transfer in Serpentine Channels with Smooth Circular Turns," ERP-97-13, PI: N.K. Anand, funded by Energy Resources Program, TAMU, 09/01/97-08/31/98, \$18,850.
11. "Use of Porous Baffles to Enhance Heat Transfer in Rectangular Channels," ERP-99-25, P.I. N.K. Anand, funded by the Energy Resources Program, TAMU, 09/01/99-

08/31/00, \$19,450.

PROFESSIONAL ACTIVITIES:

National and International:

- Associate Technical Editor- *ASME Journal of Heat Transfer* (7/03-6/06)
- Co-Editor - *Journal of Energy, Heat and Mass Transfer* (10/00-present)
- Member, Editorial Board, *Numerical Heat Transfer* (2003-present)
- Member, U.S. Delegation, U.S./Japan Seminar: *Thermal Engineering for Global Environmental Protection*, sponsored by NSF and JSPS, July 9-12, 1995, San Francisco, California
- Chair, *ASME K-20 Committee on Computational Heat Transfer* (2009-2012)
- *ASME Scholarship Review Committee* (2018)
- ABET Program Evaluator – Mechanical Engineering

Boston University, Observer, 2003; Program Evaluator: University of Cincinnati, 2004; Union University, 2005; Howard University, 2006; North Carolina A&T State University, 2007; Georgia Tech University at Savannah, 2008, University of Tennessee at Chattanooga, Chattanooga, 2009; Umm Al-Qura University, Makkah, Saudi Arabia, 2011, Northeastern University, Boston, 2013, US Military Academy, West Point, New York, 2014, Holy Spirit University of Kasalik, Jouenieh, Lebanon, 2015, University of Tabuk, Tabuk, Saudi Arabia, 2016, Prince Muhammad Bin Fahd University, Al-Khobar, Saudi Arabia, 2017, and Syracuse University, New York, 2017.

- Commissioner, Engineering Accreditation Commission, effective July 2018
- Member- ABET ASME Committee on Engineering Accreditation (CEA) effective July 2015.
- Member, US Scientific Committee-International Heat Transfer Conference, Washington, D.C., August 8-13, 2010
- ASME – Fellow; Member, ASME K-12 Committee on Aerospace Heat Transfer, 1993-present; Member, ASME K-20 Committee on Computational Heat Transfer, 1993-present; ASME K-20 Committee on Computational Heat Transfer, Vice-Chair, 2006-2009; Chair, 2009-present; ASME Brazos Valley Section, Membership Development, 1986-1987; Member, ASME-HTD Membership Development Committee, 2002-2003; K-20 KCR for IMECE 2003; and Member-Local Organizing Committee, Third U.S. National Congress on Computational Mechanics, June 12-14, 1995.
- ASHRAE – Member; Member of Technical Committee (TC 8.4) on Air to Refrigerant

Heat Exchangers, (June 1988-June 1990).

- Indian Society for Heat and Mass Transfer - Life Member (1988)
- Reviewer for - *ASME Journal of Heat Transfer*, *International Journal of Heat and Mass Transfer*, *Numerical Heat Transfer*, *AIAA Journal of Thermophysics and Heat Transfer*, *ASHRAE Transactions*, *International Journal of Refrigeration*, *ASCE Journal of Engineering Mechanics*, CEMR/TAMU Proposals, U.S. DOE UCR Program, and NSF Proposals.
- PhD Thesis Examiner -IIT, Kanpur, India , 8/01,2/04; Anna University, Chennai, India, 9/01; and Vishvesvaraya Technological University, India, 4/08.
- Tenure and/or Promotion Evaluation: University of Kuwait, 2005; Indian Institute of Science, 2008

Sessions Organized and Chaired

1. Session Chair: "Validation Studies," September 14, 1988, at Fifth Annual Building Energy Symposium sponsored by TAMU, Houston, Texas.
2. Session Co-Chair: "Developments in Air-to-Refrigerant Heat Exchangers," CH-89-23, at the ASHRAE Winter Meeting, Chicago, February 1, 1989, sponsored by ASHRAE TC 8.4. Session Co-Chair: "Heat Transfer in Recirculating Flows," National Heat Transfer Conference, Philadelphia, Pennsylvania, August 6-9, 1989, sponsored by ASME K-12 Committee.
3. Session Co-Chair: "Cogeneration Applications," January 14, 1990, New Orleans, Louisiana sponsored by ASME Petroleum Division.
4. Session Co-Chair: "Heat Transfer in Turbulent Flows," 5th AIAA/ASME Thermophysics and Heat Transfer Conference, June 18-20, 1990, Seattle, Washington, sponsored by ASME K-12 Committee.
5. Session Chair: "Heat Transfer in Turbulent Flow-III," National Heat Transfer Conference, Atlanta, Georgia, August 8-11, 1993, sponsored by ASME K-12 Committee.
6. Session Vice-Chair: "Heat Transfer in Turbulent Flow-I," National Heat Transfer Conference, Atlanta, Georgia, August 8-11, 1993, sponsored by ASME K-12 Committee.
7. Session Co-Chair: "Symposium on Advances in Computational Methods for Heat Transfer," National Heat Transfer Conference, August 5-9, 1995, Portland, Oregon, sponsored by The Ad Hoc Committee for Computational Heat Transfer.
8. Session Chair: "Turbulent Heat Transfer," ASME Winter Annual Meeting, November 1995, San Francisco, California, sponsored by the ASME K-12 Committee.

9. Session Co-Chair: "Heat Transfer in Turbulent Flows-I," ASME International Mechanical Engineering Congress and Exhibition, November 1996, Atlanta, Georgia, sponsored by the ASME K-12 Committee.
10. Session Chair: "Heat Transfer in Turbulent Flows-II," ASME International Mechanical Engineering Congress and Exhibition, November 1996, Atlanta, Georgia, sponsored by the ASME K-12 Committee.
11. Session Chair: "Heat Transfer in Porous Medium," Energy Week Conference and Exhibition, incorporating ETCE, January 28-30, 1996, Houston, Texas.
12. Session Co-Chair: "Heat Transfer in Turbulent Flows," AIAA/ASME Thermophysics Conference, June 1998, Albuquerque, New Mexico, sponsored by the ASME K-12 Committee.
13. Session Co-Chair: "Forced Convection," AIAA/ASME Thermophysics Conference, June 1998, Albuquerque, New Mexico, sponsored by the ASME K-12 Committee.
14. Session Co-Chair: "Fundamentals of Turbulence and Modeling in Heat Transfer," ASME International Mechanical Engineering Congress and Exhibition, November 2001, New York, NY, sponsored by ASME K-8 and K-20 Committees.
15. Session Co-Chair: "Numerical Modeling of Turbulent Heat Transfer," ASME International Mechanical Engineering Congress and Exhibition, November 2002, New Orleans, LA, sponsored by ASME K-12 and K-20 Committees.
16. Topical Chair: Nine Technical Sessions sponsored by ASME K-20 Committee on Computational Heat Transfer ASME International Mechanical Engineering Congress and Exhibition, November 2003, Washington, D.C.
17. Session Co-Chair: "Turbulent Heat Transfer in Multi-Phase Flows," sponsored by ASME K-12 Committee on Aerospace Heat Transfer, ASME International Mechanical Engineering Congress and Exhibition, November 2003, Washington, D.C.
18. Session Co-Chair: "Verification Problems and Benchmarking in Computational Fluid Dynamics & Heat Transfer," ASME Heat Transfer/ Fluids Engineering Summer Conference, July 11-15, 2004, Charlotte, North Carolina.
19. Session Co-Chair: "Rajagopal Symposium-8," Society of Engineering Sciences Meeting, October 11-13, 2004, Lincoln, Nebraska.
20. Session Chair: "Advances in Numerical Techniques in Heat Transfer," ASME International Mechanical Engineering Congress and Exhibition, November 2004, Anaheim, CA.
21. Session Chair: "Advances in Computational Heat Transfer I," ASME International Mechanical Engineering Congress and Exhibition, November 2008, Boston, MA.
22. Session Co-Chair: "Advances in Computational Heat Transfer II," ASME

International Mechanical Engineering Congress and Exhibition, November 2008, Boston, MA.

23. Session Chair: "Turbulent Heat Transfer," ASME Summer Heat Transfer Conference, July 2009, San Francisco, CA.
24. Topical Organizer: Nine Technical Sessions sponsored by ASME K-20 Committee on Computational Heat Transfer ASME International Mechanical Engineering Congress and Exhibition, November 2009, Orlando, Florida.
25. Session Chair: 14th International Heat Transfer Conference, August 2010, Washington, D C.
26. Track Organizer: Computational Heat Transfer, ASME 2012 Summer Heat Transfer Conference, Puerto Rico, July 8-12, 2012.
27. Topic Organizer: Computational Heat Transfer, 7-28, ASME International Mechanical Engineering Congress and Exhibition, November 2012, Houston, TX
28. Session Organizer: Applications of Computational Heat Transfer II, 7-28-3, ASME International Mechanical Engineering Congress and Exhibition, November 2012, Houston, TX.
29. Moderator: Cultural Diversity and Excellence in Engineering Education, World Congress on Engineering Education, Doha, Qatar, January 7-9, 2013.

Sessions Chaired

Session Chair: "Numerical Simulation of Fluid Flow and Heat Transfer-1," Third U.S. National Congress of Computational Mechanics, June 1995, Dallas, Texas.

INVITED SIGNIFICANT SEMINARS OR LECTURES:

1. "Effect of Wall Conduction on Free Convection Between Asymmetrically Heated Vertical Plates," Department of Mechanical Engineering and Material Science, Rice University, Houston, Texas, March 3, 1989.
2. "Three-Dimensional Modeling of Flow and Heat Transfer Through a Passage of a Plate Heat Exchanger," HTRI Winter Annual Meeting, College Station, Texas, February 17, 1994.
3. "Sampling Line Losses," U.S. DOE Radionuclide NESHAPS Workshop, Augusta, Georgia, February 23, 1994.
4. "Heat Transfer Aspects of Alternative Working Fluids in HVAC Systems," U.S./Japan Seminar: *Thermal Engineering for Global Environmental Protection*, sponsored by NSF and JSPS, July 9-12, 1995, San Francisco, California, article appeared in *Thermal Engineering for Global Environmental Protection*, pp. 135-148,

1996. Edited by Subrata Sengupta and T. Sano, published by Begell House.
5. "Heat Transfer in Channels Simulating Cooling Passages of Electronic Components," *Energy Week, Conference and Exhibition*, incorporating ETCE, January 29-February 2, 1996, Houston, Texas.
 6. "Heat Transfer Aspects of Alternative Working Fluids in HVAC Systems," *Energy Week, Conference and Exhibition*, incorporating ETCE, January 28-30, 1996, Houston, Texas.
 7. "DEPOSITION 4.0," U.S. DOE Radionuclide NESHAPS Workshop, San Antonio, Texas, July 2, 1997.
 8. "Condensation of R-410A in a Rectangular Horizontal Channel," Department of Mechanical Engineering, Louisiana State University, Baton Rouge, Louisiana, September 18, 1998.
 9. "Condensation of R-410A in a Rectangular Horizontal Channel," School of Mechanical Engineering, Purdue University, West Lafayette, Indiana, August 16 1999.
 10. "Numerical Simulation of Convective Flows in Channels," Sandia Laboratories, Albuquerque, New Mexico, April 26, 2004.
 11. "Condensation of R-410A in a Rectangular Horizontal Channel," Distinguished Lecture Series, M.S.R. School of Advanced Studies, Bangalore, India, June 14, 2004.
 12. "Condensation of R-410A in a Rectangular Horizontal Channel," B.M.S. College of Engineering, Bangalore, India, June 15, 2004.
 13. "Graduate School 101", Society of Hispanic Professional Engineers National Technical and Career Conference, Dallas, TX, January 6, 2005.
 14. "Higher Order Implicit Runge- Kutta Methods to Simulate Unsteady Incompressible Viscous Flows," Sandia Laboratories, Albuquerque, New Mexico, August 7, 2007.
 15. "Preparation of Journal Articles," 5th LSAMP Symposium, Corpus Christi, Texas, February 20, 2009.
 16. "25 by 25 Initiative", Lawrence Livermore National Laboratories, Livermore, California, January 10, 2017
 17. "Study of Turbulent Flows in Interacting Twin Rectangular Jets", Lawrence Livermore National Laboratories, Livermore, California, January 10, 2017
 18. "Dare to Dream", Keynote Address, Society of Asian American Engineers and Scientists South Regional Conference," Texas A&M University, College Station, Texas, April 1, 2017.
 19. "Computational Study of Turbulent Flows Interaction between Twin-Rectangular Jets", Keynote Address, 11th International Conference on Thermal Engineering Theory and Applications, Doha, Qatar, February 2018.

20. "Computational Study of Turbulent Flows Interaction between Twin-Rectangular Jets", Division of Mechanical Sciences Seminar, Indian Institute of Science, Bengaluru, March 2018.
21. "Texas A&M Engineering Academies," ASME Engineering Education Leadership Summit, San Diego, California, March 14-17, 2018.

Texas A&M University

- Proctored EIT Examination, 1986, 1989, and 1993 and Thermodynamics Review/Help Session for the EIT Examination, 1987, 1988, and 1989.
- College of Engineering Representative, TAMU Mini-Grant Committee, 1989-1992.
- Mechanical Engineering Department Heat Transfer Ph.D. Qualifying Exam Committee, 1990-1993, 1995-1998.
- Co-taught short course on "Energy Management Fundamentals," 1986, 1987, and 1988.
- Mechanical Engineering Department Research Executive Committee, 1991-1997.
- Mechanical Engineering Department Computer Committee, 1994-1997.
- Member, Faculty Senate, 1994-1997.
- Chair, Department Bylaws Committee, 1997.
- Member, Department Graduate Studies Committee, September 1, 1997-2004.
- Member, College of Engineering Teaching Evaluations Committee, May 1997
- Member, Thermal Science Faculty Search Committee, 1997 - 1998.
- Member, Tenure and Promotion Committee, 1998 - 2000; 2003 - 2005; 2006 - 2009
- Chair, Tenure and Promotion Committee, 2000, 2008
- Member, Department Head Search Committee, 2002 - 2003
- Member, Departmental Strategic Plan Committee; 2003
- Graduate Program Director, September 1998 - August 2004
- Associate Department Head, May 2003 - August 2006
- Assistant Dean for Graduate Programs, College of Engineering, 2004 - 2007
- Associate Dean for Graduate Programs, College of Engineering, 2007 – 2008
- Associate Dean for Research, College of Engineering, 2008 - present
- Associate Agency Director, TEES, 2008 - present
- Member, University Apartments Customer Service and Communication Review Team, August 2004 - 2005
- Interim Head, Department of Chemical Engineering, September 2006 - August 2007
- Member, Sub-Committee on Undergraduate Research Enhancement, 2005
- College of Engineering Representative to the GC/GOC, 2004 - 2008

- Member, English Language Proficiency Committee 2005 - 2006
- Member, Department of Mechanical Engineering Thermal Science Faculty Search Committee, 2005 - 2006
- Chair, College of Engineering Graduate Instruction Committee 2004 – 2008
- Member, Engineering Resource Allocation Committee, 2008 – 2012
- Member, TAMUQ Research and Graduate Studies Committee, 2008 – 2009
- Member, Council on Built Environment, 2011-present
- Member Senior Safety Oversight Committee, 2011-present
- Chair, Texas A&M University, Qatar Dean and CEO Search Committee, 2014
- Member, Committee on Academic Freedom, Responsibility, and Tenure 2014

January 2019