BAKHTIER (BAKI) FAROUK

Curriculum Vita

Updated: August 2012

PERSONAL

Date of Birth: December 5, 1951
Citizenship: U. S. A.
Family: Married to *former* Nadira Begum, *CPA*
one daughter, Samira Farouk, *MD*

Business Address: Department of Mechanical Engineering and Mechanics
Drexel University
Philadelphia, PA 19104
(215) 895-2287, 2352; FAX: (215) 895-1478
e-mail: bfarouk@coe.drexel.edu
URL address: http://www.pages.drexel.edu/~farouk/

EDUCATION

Ph. D. Mechanical and Aerospace Engineering
University of Delaware, **1981**
M.S. Mechanical and Aerospace Engineering
University of Delaware, **1978**
B.S. Mechanical Engineering
Bangladesh University of Engineering and Technology, **1975**

HONORS AND AWARDS

- AIAA Philadelphia Section, **Ira Cohen Fluid Dynamics Award, May 2008**
- Drexel University, **J. Harland Billings Professor**, April 2004
- University of Delaware, **Presidential Citation for Outstanding Achievement**, 1999
- Drexel University, **Research Achievement Award**, April 1993
- ASM - American Society of Metals, **Henry Marion Howe Medal**, October 1989
- SAE, **Ralph Teetor Educational Award**, January 1988
- Listed in American Men and Women in Science, Who's Who in Science and Engineering

MAJOR FIELDS OF RESEARCH INTEREST

Microscale and low pressure flows; Acoustic/fluid mechanic interactions; Transport in Near-Critical Fluids; Hazardous waste management; Plasma Processing in reactors and furnaces; Transport phenomena in materials processing; Combustion and fires; Multiphase flows; Computational methods in fluid mechanics and heat transfer; Convective and radiative heat transfer; Heat transfer in microgravity

EMPLOYMENT

April 2004 – present
J. Harland Billings Professor of Mechanical Engineering

September 1989 - present
Professor of Mechanical Engineering

September 1986 - August 1989
Associate Professor of Mechanical Engineering

September 1981 - August 1986
Assistant Professor of Mechanical Engineering
Department of Mechanical Engineering and Mechanics
Drexel University, Philadelphia, Pennsylvania

September 2000 – September 2001
Interim Head
Department of Mechanical Engineering and Mechanics
Drexel University, Philadelphia, Pennsylvania

September 1977 - June 1981
Teaching and/or Research Assistant
Mechanical and Aerospace Engineering Department
University of Delaware, Newark

June 1976 - July 1977
Research Assistant
Mechanical Engineering Department
University of Houston, Texas

May 1975 - May 1976
Lecturer
Mechanical Engineering Department
Bangladesh University of Engineering and Technology

SUMMER AND SABBATICAL ASSIGNMENTS

September 1999 - May 2000
Guest Researcher (on sabbatical leave)
Building and Fire Research Laboratories
National Institute of Standards and Technology
Gaithersburg, Maryland

Summer 1997
Navy-ASEE Senior Summer Faculty Research Associate
Naval Research Laboratory
Washington, D. C.

January 1992 - May 1992
Visiting Fellow (on sabbatical leave)
Air Products and Chemicals, Inc.
Allentown, Pennsylvania

September 1991 - December 1991
Visiting Fellow (on sabbatical leave)
Mechanical and Aerospace Engineering Department
Princeton University, New Jersey

Summer 1988
Navy-ASEE Summer Faculty Research Associate
Naval Research Laboratory
Washington, D. C.

June 1978 - August 1978
Research Fellow
Institute of Energy Conversion
University of Delaware, Newark

PROFESSIONAL SOCIETY AFFILIATIONS

Fellow:	American Society of Mechanical Engineers (*since* 1997)
Associate Fellow:	American Institute of Astronautics and Aeronautics (*since* 2011)
PE (Professional Engineer):	Pennsylvania (Registration # PE 043067 E)
ME PEV (Program Evaluator):	Accreditation Board for Engineering and Technology (ABET)

Member: ASME
ASME K-19 Committee on Environmental Heat Transfer
ASME K-20 Committee on Numerical Heat Transfer
AIAA
APS (American Physical Society)
Sigma Xi; Pai Tau Sigma: Tau Beta Pai

RESEARCH SUPPORT

Principal Investigator, National **Science Foundation** REU Supplement, 'Atmospheric-Pressure Microplasmas for High-Rate Deposition and Microfabrication ', June 2011 - December 2012, $10,000

Principal Investigator, **DoE/CFIC SBIR**, 'Reliable, Practical Kilowatt-Class Cryogenics for Superconducting Devices' December 2010 – December 2011, $20,000

Principal Investigator, **National Science Foundation,** 'Fundamental Studies of the Thermoacoustic Effect: Interaction of Acoustic Waves with Viscous Fluids', September 2009 – August 2013, $300,000

Principal Investigator, **Pittsburgh Supercomputing Center,** 'Modeling of Carbon Nanotube Dispersions in Polymer Nanocomposite Processing', 150000 CU on PSC XT3, July 2009 – June 2011

Co-Investigator, **DHS/HS-STEM**, 'Fellowship Program in Microbial Risk Assessment for Built Environment', September 2008 – August 2111 (PI: Jin Wen) *$300,000*

Co-Investigator, **DoE/GAANN**, 'Computational Materials Science and Engineering', September 2007 – August 2010 (PI: Antonios Zavaliangos) *$511,524*

Principal Investigator, **National Science Foundation** 'Atmospheric-Pressure Microplasmas for High-Rate Deposition and Microfabrication ', September 2004 – August 2008, $340,000

Principal Investigator, **National Aeronautics and Space Administration**, 'Thermoacoustic Convection and Transport in Gases and Near-Critical Fluids under Microgravity Conditions ', December 2003 – March 2008, $375,000

Principal Investigator, National **Science Foundation** REU Supplement, ‘Atmospheric-Pressure Microplasmas for High-Rate Deposition and Microfabrication ', January 2006 - December 2006, $12,000

Principal Investigator, National **Science Foundation** REU Supplement, ‘Atmospheric-Pressure Microplasmas for High-Rate Deposition and Microfabrication ', January 2005 - December 2005, $6,000

Co-Principal Investigator, **National Science Foundation, ‘**Building Decontamination: A Process Engineering Approach’, September 2003 – February 2006, $99,894

Co-Principal Investigator, **CiMeRC/DoD**, ‘Assessment of Physical Scale Models for Development of Room Decontamination Design Criteria’, April 2004 – March 2005, $49,900

Co-Principal Investigator, **DARPA/HEXCEL Corporation**, ‘Fiber Carbonization and Electrospinning Studies’, June 2003 – December 2003, $117,000

Principal Investigator, National **Science Foundation** REU Supplement, ‘Plasma-Assisted Net-Shape Deposition for Microfabrication ', July 2002 - June 2003, $6,000

Principal Investigator, National **Science Foundation** ‘Plasma-Assisted Net-Shape Deposition for Microfabrication ', July 2002 – December 2003, $85,111

Principal Investigator, **National Institute of Standards and Technology**, Support under Intergovernmental Personnel Act, ‘Development of Fire Prediction Models’, September 1999 – June 2000, $28,826

Principal Investigator, **Lockheed Martin Corporation**, Support for Senior Design Projects, April 1999, $5,000

Principal Investigator, **IBM Corporation,** Shared University Research (SUR) grant, ‘‘Supplement to the High-Performance Computer for the College of Engineering', September 2000- September 2002, $300,000

Principal Investigator, National **Science Foundation** Major Research Instrumentation (MRI) Grant, ‘A High-Performance Computer for the College of Engineering', September 1999- September 2002, $300,000

Principal Investigator, **National Center for Supercomputing Applications** Grant No. MCA98N005, 400 SUs on Cray J90, April 1998 - March 1999

Co-Principal Investigator, National **Science Foundation** Supplement Grant, 'Research Experience for Undergraduates', November 1996 - September 1997, $10,000

Co-Principal Investigator, **National Science Foundation** SGER Grant, 'Ecological Studies of Organism-flow Interactions via Advanced Simulation and Diagnostic Techniques', March 1996 - February 1998, $50,000

Principal Investigator, **Electro-Pyrolysis Inc, Horsham, Pa**, **/Svedala Industries, Inc,** ‘Modeling of a DC Arc Process for the Treatment and Recycling of Hazardous Solid Waste’, $25,000, January 1, 1996 - December 31, 1996

Principal Investigator, **Ashland Petroleum Co., Ashland, KY**, ‘Modeling of Liquid Fuel Jet Injection in a Molten Metal Pool’, $15,000, January 1 - December 31, 1997

Principal Investigator, **Diamonex Inc., Allentown, PA**, ‘Thermal Conductivity Measurement of Thin Films’, $45,000, January 1, 1997 - December 31, 1998

Co-Principal Investigator, National **Science Foundation** Supplement Grant, 'Research Experience for Undergraduates', November 1994 - September 1995, $10,000

Co-Principal Investigator, **Pro-Tech Reclamation, Inc, Trevose, Pa.**, ‘Carbon Reduction of Mixed Iron Oxides and Zinc Vapor Condensation’, $25,000, January 1995 - December 1995

Co- Principal Investigator, **Ben Franklin Partnership/Electro-Pyrolysis Inc, Horsham, Pa**, ‘Modeling of a DC Arc Process for the Treatment and Recycling of Hazardous Solid Waste’, $85,000, September 1994 - December 1995

Principal Investigator, **Ben Franklin Partnership/Seaview Thermal Systems**, **Blue Bell, Pa. ‘**Modeling of a Thermal Desorption Process of Hydrocarbon Contaminated Soil’, $100,000, April 1994 - March 1996

Co-Principal Investigator, **National Science Foundation**, ‘Numerical and Experimental Study of Plasma Assisted Chemical Vapor Deposition of Diamond-Like Carbon Films’, $250,000, April 1994 - September 1998

Principal Investigator, **Air Products and Chemicals Inc, Allentown, Pa.**, Equipment support (RISC-workstation), $7,000, March 1993

Co-Principal Investigator, **Lukens Steel Company**, ‘Detailed Process Modeling of Industrial Arc Furnaces’, September 1992 - July 1993, $12,000

Principal Investigator, **CertainTeed Corporation**, **Blue Bell, Pa.** ‘Glass Furnace Modeling’, March 1992 - December 1992, $8,000

Co-Principal Investigator, Lukens **Steel Co. Coatesville, Pa. /Ben Franklin Partnership**, ‘Detailed Process Modeling of Industrial Arc Furnaces’, January 1991 - December 1991, $30,000

Principal Investigator, **Public Service Electric and Gas Company, New Jersey,** 'Forced Convective Boiling in Vertical Pipes', January 1991 - December 1993, $35,000/yr.

Principal Investigator, **Air Products and Chemicals Inc./Ben Franklin Partnership**, 'Modeling of Combustion Processes in Glass Melting Furnaces', June 1990 - September 1991, $83,000

Principal Investigator, **National Science Foundation** Supplement Grant, 'Research Experience for Undergraduates', January 1990 - December 1991, $4,000

Principal Investigator, **Pittsburgh Supercomputing Center**, 'Development of Multi-Dimensional Heat and Mass Transfer Models for Chemical Vapor Deposition Reactors', 80 hours of CRAY X-MP cpu time, February 1, 1989 - December 30, 1990

Principal Investigator, National **Science Foundation** Supplement Grant, 'Research Experience for Undergraduates', January 1989 - December 1989, $8,000

Co-Principal Investigator, National **Science Foundation** Equipment Grant, 'Phase Doppler Particle Analyzer', May 1988 - October 1989, $153,000

Principal Investigator, Air **Products and Chemicals Inc. /Ben Franklin Partnership**, 'Modeling of Gas Injection in Molten Metal', September 1987 - August 1989, $96,597/year

Principal Investigator, **National Science Foundation** Grant, 'Heat and Mass Transfer in Rotating Systems', July 1987 - December 1990, $158,283

Principal Investigator, **RCA**, Impingement Cooling of Electronic Equipment' January 1987 - June 1989, $1,500/Yr.

Principal Investigator, **Army Research Office**, 'Spray Evaporation Studies In a Shear Layer' January 1987 - December 1987, $37,000

Principal Investigator, **Ben Franklin Partnership, Technology Center of Southeastern Pennsylvania**, Equipment Grant, May 1986 - August 1986, $5,990

Co-Principal Investigator, **Hazelett Corporation** Grant, 'Modeling of a Twin Belt Thin Strip Casting Process', January 1986 - December 1987, $18,000/Yr.

Principal Investigator, **National Science Foundation** Engineering Supercomputer Initiation Grant, October 1985 -September 1986, 25 hours Class VI computer CPU time, $25,000

Principal Investigator, **National Science Foundation** Equipment Grant, 'Holographic Interferometer System for Heat Transfer and Combustion Studies' July 1985 - September 1986, $35,400

Co-Principal Investigator, **General Electric Corporate R & D** Grant, 'Modeling of Inductively Coupled RF Plasmas for Metal Spraying and Deposition Systems', October 1984 - September 1985, $50,000

Principal Investigator, **Intertech Corporation** Equipment Grant, ' 2’ Mach-Zehnder Interferometer System', June 1984, $15,000

Principal Investigator, **National Science Foundation** Initiation Grant, 'Convective Heat Transfer from Rotating Circular Cylinders' July 1983 -December 1985, $48,000

Principal Investigator, **Drexel University** Mini-Grant, 'Predictions of Turbulent Reacting Flows in Combustion Chambers', January - December 1982, $2,000

PUBLICATIONS

Book Chapters

1. Encyclopedia of Fluid Mechanics, Supplement 1, (Applied Mathematics and Fluid Mechanics), Gulf Professional Publishing, April 1993
"Characteristics of Flow Fields in Liquid Metal Baths due to Vertically Injected Gas Jets", with H. Turkoglu, 135-152

2. Plasma Assisted Decontamination of Biological and Chemical Agents , NATO Advanced , Study Institute, Cesme, Turkey, Springer, September, 2007
"Simulation of Atmospheric Pressure Non-thermal Plasma Discharges for Surface Decontamination Applications" with T. Farouk, 285-294

3. Advances in Heat Transfer, Vol. 42, Elsevier, 2010
"Acoustic Wave Induced Flows and Heat Transfer in Gases and Supercritical Fluids", with Y. Lin and Z. Lei, pp. 1-135, 2010

Journal Publications

130. 'High amplitude non-linear acoustic wave driven flow fields in circular and conical resonators', with D. Antao, Journal of the Acoustical Society of America (under review)

129. 'Multifield Analysis of a Piezoelectric Valveless Micropump: Effects of Actuation Frequency and Electric Potential' with E. Sayar, Smart Materials and Structures , Vol. 21, No. 7, 75002-75015, 2012

128. 'Thermoacoustic Transport in Near-Critical FluidsThermoacoustic transport in supercritical fluids at near-critical and near-pseudo-critical states" with N. Hasan, J. of Supercritical Fluids, Vol. 68 13-24, 2012

127. 'Experimental and Numerical Investigations of an Orifice type Cryogenic Pulse Tube Refrigerator' with D. Antao, Applied Thermal Engineering (in press)

126. 'Numerical Analysis of an Orifice Pulse Tube Refrigerator: Optimization for Space Applications Cryogenics', with D. Antao, Cryogenics, Vol. 52, 4, 196 – 204, 2012

125. "Buoyancy driven convection in near-critical and supercritical fluids" with N. Hasan, International Journal of Heat and Mass Transfer Vol. 55, 4207–4216, 2012

124. 'Molecular Dynamics Simulations of Carbon Nanotube Dispersions in Water: Effects of Nanotube Length, Diameter, and Chirality and Surfactant Structures', with N. Uddin and F. Capaldi Journal of Computational Materials Science Vol. 53, 133–144, 2012

123. " Development of Metamodels for Predicting Aerosol Dispersion in Ventilated Spaces", with S. Hoque and C. N. Haas, Atmospheric Environment, Vol. 45, 1876-1887, 2011

122. 'Acoustically Generated Flows in Microchannel Flexural Plate Wave Sensors: Effects of Compressibility' with E. Sayar, Sensors and Actuators A 171, 317– 323, 2011

121. 'Dielectrophoretic Particle-Particle Interaction under AC Electrohydrodynamic Flow Conditions' with D-H Lee, C. Yu, E. Papazoglu and H. Noh, Electrophoresis, Vol 32, 1–9, 2011

120. '3-D Simulations of Electroosmotic Sample Migration in Microchannels: Effects of Surface and Solution Property Variations', with D-H Lee and H. Noh, Separation Science and Technology, Vol. 46, No. 9, 1377 - 1387, 2011

119. '3-D Simulation of Electroosmotic Injection and Migration in Microchannels; Effects of Non-rectangular Cross Section', with D-H Lee and H. Noh, Separation Science and Technology, Vol. 46, No. 2, 195–204, 2011

118. 'Development of Artificial Neural Network Based Metamodels for Inactivation of Anthrax Spores in Ventilated Spaces Using Computational Fluid Dynamics' with S. Hoque and C. N. Haas, Journal of the Air & Waste Management Association, Vol. 61, No. 9, 968-982, 2011

117. 'Numerical Simulations of Transport Processes in a Pulse Tube Cryocooler: Effects of Taper Angle' with D. Antao, International Journal Heat Mass Transfer, Vol.54, 4611– 4620, 2011

116. 'Computational fluid dynamics simulations of an orifice type pulse tube refrigerator: Effects of operating frequency', with D. S. Antao, Cryogenics 51, 192–201, 2011

115. 'Development of metamodels for predicting aerosol dispersion in ventilated spaces', with S. Hoque and C. N. Haas, Atmospheric Environment, 45, 1876-1887, 2011

114. 'Molecular dynamics simulations of the interactions and dispersion of carbon nanotubes in polyethylene oxide/water systems', with N. M. Uddin and F. M. Capaldi, Polymer 52, 288 – 296, 2011

113. 'Sensor Placement for Urban Homeland Security Applications', with 'D. Hamel, M. Chwastek, S. Garcia, M. Kam and K. R. Dandekar, International Journal of Distributed Sensor Networks, Vol. 2010, Article ID 859263, 15 pages 2010

112. 'Computational studies of atmospheric pressure methane-hydrogen DC micro glow discharges' with T Farouk, and A Fridman, IEEE Transactions Plasma Science Vol. 38, No. 2, 73-85, 2010

111. 'Multiple Linear Regression Models Approach for Particle Dispersion in Ventilated Spaces using Computational Fluid Dynamics and Dimensional Analysis' S. Hoque and C. N. Haas, ASCE Journal of Environmental Engineering, Vol. 136, No. 4, 638 – 649, 2010

110. 'Molecular Dynamics Simulations of Dispersion of Carbon Nanotubes in Water: Effects of Nanotube Orientation and Surfactant Addition', with N. Uddin, and F. Capaldi, ASME Journal of Engineering Materials and Technology Vol. 132, 021012-2 - 021012-25, 2010

109. 'Process, Structure, and Properties of Electrospun Carbon Nanotube Reinforced Nanocomposite Yarns' with N. Uddin, F. Ko, J. Xiong, and F. Capaldi, Research Letters in Materials Science Vol. 2009, Article ID 868917, 5 pages, 2009

108. 'Stabilization of the Ionization Overheating Thermal Instability in Atmospheric Pressure Microplasmas', with D. Staack, A. Gutsol and A. Fridman, Journal of Applied Physics, Vol. **106**, 013303-1 -013303-7, 2009

107. 'Atmospheric Pressure DC Corona Discharges: Operating Regimes and Potential Applications' with D. S Antao, D. Staack, A. Fridman, Plasma Sources Sci. Technol. , Vol. **18,** 035016 (11pp), 2009

106. 'Simulation of Gas Species and Temperature Separation in the Counter-flow Ranque–Hilsch vortex tube using the large eddy simulation technique', with T. Farouk, Int. J. Heat Mass Transfer, Vol. 52. 3320–3333, 2009

105. 'Countercurrent Gas/Liquid Flow and Mixing: Implications for Water Disinfection', with T. Bartrand and C. N. Haas, Int. J. Multiphase Flow, Vol. 35, 171–184, 2009

104. 'Atmospheric pressure methane-hydrogen dc micro glow discharge for thin film deposition' with T Farouk, A Gutsol and A Fridman, Applied Physics D Vol. **41**, 175702-175721, 2008

103. 'Self-rotating DC atmospheric pressure discharge over a water-surface electrode: regimes of operation', with A. Wilson, D. Staack, and A. Gutsol, Plasma Sources Sci. Technol. Vol. **17,** 045001-025913, 2008

102. 'DC normal glow discharges in atmospheric pressure atomic and molecular gases' with D. Staack, A. Gutsol and A. Fridman, Plasma Sources Sci. Technol. Vol. **17,** 025013-024025 (2008)

101. 'Heat transfer in a rectangular chamber with differentially heated horizontal walls: Effects of a vibrating sidewall' with Y. Lin, Int. J. Heat Mass Transfer Vol. **51**, 3179-3189, March 2008

100. 'Interactions of Thermally Induced Acoustic Waves with Buoyancy Induced Flows in Rectangular Enclosures', with Y. Lin and E. S. Oran, Int. J. Heat Mass Transfer Vol. **51**, 1665-1674, March 2008

99. 'Experimental and Numerical Studies of Thermally Induced Acoustic Waves in a Closed Enclosure' with Y. Lin, AIAA Journal of Thermophysics and Heat Transfer, Vol. **22**, 105-114, January 2008

98. 'Atmospheric pressure radio frequency glow discharges in argon: effects of external matching circuit parameters', with T. Farouk, D. Staack, A. Fridman, and A. Gutsol, Plasma Source Sci. Technology, Vol. **17** 035015-035029 ,2008

97. 'Spatially Resolved Temperature Measurements of Atmospheric Pressure Normal Glow Microplasmas in Air' with D. Staack, A. Fridman, and A. Gutsol, IEEE Transactions Plasma Science, Vol. 35, 5, 1448-1455, October 2007

96. 'Large eddy Simulations of the Flow Field and Temperature Separation in the Ranque- Hilsch Vortex tube', with T. Farouk, Int. J. Heat Mass Transfer, Vol. **50**, 4724-4735, November 2007

95. 'Modeling of Direct Current Micro-plasma Discharges in Atmospheric Pressure Hydrogen' with T. Farouk, D. Staack, A. Fridman, and A. Gutsol, Plasma Sources Sci. Technol. Vol. **16,** 619–634, November 2007

94. 'Computational Fluid Dynamic Analysis of the Effects of Reactor Configuration on Disinfection Efficiency ', with D. G. Greene, and C. N. Haas , Water Environment Research, Vol. 78(9), 909-919, October 2006

93. 'Spectroscopic Studies and Rotational and Vibrational Temperature Measurements of Atmospheric Pressure Normal Glow Plasma Discharges in Air', with D. A. Staack, A. F. Gutsol and A. A. Fridman, Plasma Sources Science and Technology, Vol. 15, 818-827, September 2006

92. 'Simulation of dc Atmospheric Pressure Argon Micro Glow Discharge' with T. Farouk, D. Staack, A. Fridman, and A. Gutsol Plasma Sources Science and Technology, Vol. 15, 676-688, August 2006

91. 'Flows Induced by Thermoacoustic Waves: Effects of Gravity', with Y. Lin and E. S. Oran AIAA Journal of Thermophysics and Heat Transfer, Vol. 20, No. 5, 376-383, July 2006

90. 'Use of CFD for Wastewater Disinfection Process analysis: E.coli Inactivation with Peroxyacetic Acid', with D. Santoro, T. A. Bartrand, D. J. Greene, C. N. Haas, M. Notarnicola, and L. Liberti, International Journal of Chemical Reactor Engineering, Vol. 3, A46, 2005

89. 'Heat Transfer Enhancement by Acoustic Streaming in an Enclosure', with M. Aktas and Y. Lin, ASME Journal of Heat Transfer, Vol. 127, No. 12, 1313-1321, December 2005

88. 'Atmospheric Pressure Plasma Microdischarge: A Characterization Study', with D. Staack, A. Fridman and A. Gutsol, Plasma Sources Science and Technology, Vol. 14, 700 -711, October 2005

87. 'Numerical Simulation of Acoustic Streaming Generated by Finite Amplitude Standing Waves in an Enclosure', with M. Aktas, Journal of the Acoustical Society of America, Vol. 116, No. 5, 2822-2831, November 2004

86. 'Thermoacoustic Waves in Water', with M. Aktas, P. Narayan ad M. Wheatley, Physics of Fluids B, Vol. 16, No. 10, 3786-3794, October 2004

85. 'CFD Design Approach for Chlorine Disinfection Processes', with D. G. Greene, and C. N. Haas, AWWA. Journal, Vol.96, No. 8, 138-150, August 2004

84. 'Numerical Simulations of Gas/Liquid Transport in Centrifuges', with F. Yan, ASME J. Fluids Engineering, Vol. 125, 1033-1042, November 2003

83. 'Numerical Simulations of Electrostatically driven Liquid Jets', with F. Yan and F. Ko, Journal of Aerosol Sciences, Vol. 34, 99-116, February 2003

82. 'Numerical Prediction of Developing Natural Convection in an Enclosure due to Rapid Heating', with M. Aktas, International Journal of Heat Mass Transfer, Vol. 46, No. 3, 2253-2261, March 2003

81. 'Numerical Simulation of Chlorine Disinfection Processes', with D. J. Greene and C. N. Haas, Water Science and Technology: Water Supply, Vol. 2, No. 3, pp. 167-173, September 2002

80. 'Computations of Mixing of Two Parallel Gas Streams in Microchannels using Direct Simulation Monte Carlo Method', with F. Yan, Microscale Thermophysical Engineering, Vol. 6, 3, 235-251, August 2002

79. 'Computations of Low Pressure Fluid Flow and Heat Transfer in Ducts using Direct Simulation Monte Carlo Method', with F. Yan, ASME J. Heat Transfer, Vol. 124, 609-616, August 2002

78. 'Effects of Design and Operating Variables on Process Characteristics in RF Methane Discharge', with K. Bera and Y. Lee, Plasma Sources Science and Technology, Vol. 10, 211-225, June 2001

77. 'Inductively Coupled RF Methane Plasma Simulation', with K. Bera and P. Vitello, Journal of Applied Physics D, Vol. 34, 1479-1490, May 2001

76. 'Low Dielectric Fluorinated Amorphous Carbon Thin Film Grown from C_6H_6 and Ar Plasma', with J. W. Yi and Y.H. Lee, Thin Solid Films, Vol. 374, 103-108, and 2000

75. 'Thermal Conductivity Measurement of Thin Diamond Films Using a Modified Thermal Comparator Method', with K. R. Cheruparambil, J. E. Yehoda and N. Macken, ASME J. Heat Transfer, Vol. 122, 808-816, November 2000

74. 'Thermoacoustic Waves in an Enclosure' with E. S. Oran and T. Fusegi, Physics of Fluids B, Vol. 12, No.5, 1052-1061, May 2000

73. 'Two-dimensional Radio-Frequency Methane Plasma Simulation: Comparison with Experiments', with K. Bera, W. J. Yi and Y.H. Lee, IEEE Transactions on Plasma Science, Vol. 27, No. 5, 1476-1486, October 1999

72. 'Simulation of Thin Carbon Film Deposition in a Radio-Frequency Methane Plasma Reactor', with K. Bera. W. J. Yi and Y.H. Lee, Journal of the Electrochemical Society, Vol. 146, No. 9, 3264-3269, December 1999

71. 'Two-Dimensional Modeling of Radio-Frequency Methane Plasma' with K. Bera and Y.H. Lee, Plasma Sources Science and Technology, 8, No. 3, 412-420, August 1999

70. 'Heat Transfer from a Liquid Bath due to an Impinging Gas Jet: Effect of Liquid Prandtl Number ' with F. Qian, R. Mutharasan and N. Macken , ASME Journal of Heat Transfer, 121, 333-340, May 1999

69. 'Modeling of Thermal Treatment of Solid Wastes in Electric Arc Melters for Materials Recovery', with A. Wenger and K. Wittle, Journal of Air and Waste Management, 49, 279-288, March 1999

68. 'Effects of Gas Composition and RF Power on Properties of a-C: H/SiC: H Composites Thin Films Grown by PECVD', with J.W. Yi, and Y.H. Lee, Thin Solid Films, 326, 154-159, July 1998

67. 'Two- and Three-phase Flows in Bubble Columns: Numerical Predictions and Measurements', with D. Mitra-Majumdar , Y.T. Shah, N. Macken and Y. K. Oh, Ind. Engineering Chem. Research, 37 (6), 2284-2292, June 1998.

66. 'Modeling of Two-dimensional Radio-frequency Methane Glow Discharge in Cylindrical Geometry', with K. Bera and Y.H. Lee, JSME International Journal, Special Issue on Fluids Engineering, 41, 1-2, 132-138, May 1998

65. 'Thermal Conductivity of DLC (Diamond-like Carbon) Films and its Relation to Mechanical and Chemical Properties', with C. Mesyngier, Y.H. Lee, J.W. Yi and D.W. Brown, Journal of Chemical Vapor Deposition, 6, 4, 323-337, April 1998

64. 'Modeling of RF Plasma Discharge of Methane for Carbon Film Deposition', with K. Nagayama and Y.H. Lee, IEEE Transactions on Plasma Science , 26, 2, 125-134, April 1998

63. 'Modeling a Direct-Contact Condenser for Metal Recovery', with H. Turkoglu and L. Yang, Numerical Heat Transfer, Part A, Vol. 33, 457-475, March 1998

62. 'Hydrodynamic Modeling of Three-Phase Flows through a Vertical Column' with D. Mitra-Majumdar and Y.T. Shah, Chemical Engineering Sciences, S2 (24): 4485 -4498, December 1997

61. 'Modeling of Granular Flow and Heat Transfer of Contaminated Soil within a Rotary Calciner', with L. Yang, Journal of Air and Waste Management, Vol. 47, 1189-1196, November 1997

60. 'Modeling of Thermal Treatment of Hazardous Solid Wastes in a DC Arc Melter', with A. Wenger, J. K. Wittle, Journal of Air and Waste Management, Vol. 46, 1162-1170, December 1996

59. 'Studies of Deformations in a Liquid Bath due to Direct Impinging Gas Jet', with F. Qian and R. Mutharasan, Metallurgical and Materials Transactions B, 27B, 911-920, December 1996

58. 'Neutral and Charged Particle Simulations of Ar Plasma', with K. Nagayama and Y.H. Lee, Plasma Sources Science and Technology, Vol. 5, 685-695, 1996

57. 'Effects of Gas Composition and Bias Voltage on the Structure and Properties of a-C: H/SiO_2 Nanocomposites Thin Films Prepared by PECVD', with J.H. Lee, and Y.H. Lee, Journal of Vacuum Science and Technology A, Vol. 14, 2702-2711, 1996

56. 'Influence of Ion Energy Flux on Structure and Optical Properties of a-C:H Thin Films' with J.H. Lee, and Y.H. Lee , Journal of Applied Physics, Vol. 79, 1-12, 1996

55. 'Mechanical Properties of a-C:H and a-C:H/SiO_X Nanocomposite Thin Films Prepared by Ion-Assisted Plasma Enhanced Chemical Vapor Deposition' with J.H. Lee, D.S. Kim and Y.H. Lee, Thin Solid Films, Vol. 280, pp. 204-210, November 1996

54. 'Phase-resolved Measurements in a Gas-injected Liquid Bath', with H. Turkoglu, International Journal of Heat and Mass Transfer, Vol. 39, No. 16, pp. 3401-3416, November 1996

53. 'Effects of RF Power on Plasma Phase Reactions and Film Structure in Deposition of a-C: H by Styrene/Argon Discharge', with J.H. Lee, D.S. Kim and Y.H. Lee, Journal of Electro-Chemical Society, Vol. 143, pp.1451-1458, July 1996

52. 'Turbulent Natural Convection - Non-Gray Radiation Analysis in a Square Enclosure' with C. Mesyngier, Numerical Heat Transfer, Part A, Vol. 29, pp.671-687, June 1996

51. ‘Effects of Oxidation on Optical Properties of Polymer-like and Diamond-like Amorphous Hydrogenated Carbon Films’ with J.H. Lee, D.S. Kim and Y.H. Lee, Materials Science Letters, Vol. 14, pp.1132-1142, December 1995

50. ‘A Model for Two-phase Turbulent Mixing in a Jet Bubble Column’, with Y. T. Shah and D. Mitra-Mazumdar, Canadian Journal of Chemical Engineering, Vol. 73, pp.772-778, October, 1995

49. ‘Modeling of Fluid Flow and Heat Transfer in the Plasma Region of the Electric Arc Furnace’, with F. Qian and R. Mutharasan, Metallurgical and Materials Transactions B, Vol. 26B, 1057-1067, October 1995

48. 'Transport of Gas-Liquid Flows through Vertical Columns’, with Y. T. Shah and D. Mitra-Mazumdar, Chemical Engineering Communications, Vol. 137, pp. 191-209, July 1995

47. ‘Mixed Convection Flows within a Horizontal Annulus with Heated Rotating Square Inner Cylinder’, with L. Yang, Numerical Heat Transfer, Vol. 28, No.1, pp. 1-18, July 1995

46. ‘Numerical Simulation of Subcooled Boiling of Heat Transfer in a Vertical Pipe’, with J. C. Lai, International Journal of Heat & Mass Transfer , Vol. 36, No. 6, 1541-1551, April 1993

45. ‘Characteristics of Flow Fields in Liquid Metal Baths due to Vertically Injected Gas Jets’, with H. Turkoglu , Encyclopedia of Fluid Mechanics, Supplement 1, (Applied Mathematics and Fluid Mechanics), 135-152, April 1993

44. ‘Rebuttal on the note, ’Considerations Concerning the Numerical Computations of Mixing Times in Steelmaking Ladles’ by Mazumdar and Guthrie’ with H. Turkoglu, The Iron and Steel Institute of Japan Journal, Vol. 33, 517-518, April 1993

43. ‘Three Dimensional Mixed Convection Flows in a Horizontal Annulus with a Heated Rotating Inner Circular Cylinder’, with L. Yang, International Journal of Heat & Mass Transfer, Vol. 35, No. 8, 1947-1956, November 1992

42. ‘Effect of Gas Injection Velocity on Mixing and Heat Transfer in Molten Steel Baths’, H. Turkoglu, Numerical Heat Transfer, Part A, Vol. 21, 377-399, October 1992

41. ‘Three-Dimensional Predictions of Silicon Deposition in a Barrel Reactor’, with L. Yang and R. L. Mahajan , Journal of Electrochemical Society, Vol. 139, No. 9, 2666-2673, September 1992

40. ‘A Numerical and Experimental Study of the Solidification Processes in a Twin-Belt Caster’, with D. Apelian and Y. G. Kim , Metallurgical Transactions B , Vol. 23, 477-492, August 1992

39. ‘A Numerical Study on the Solidification Processes in a Twin-belt Caster’, with Y. Kim and D. Apelian , Numerical Heat Transfer , Part A, Vol. 20, 375-393, January 1992

38. ‘Mixing Time and Liquid Circulation Rate in Steelmaking Ladles with Vertical Gas Injection’, with H. Turkoglu, The Iron and Steel Institute of Japan Journal, Vol. 31, 1371-1380, December 1991

37. ‘Numerical Simulations of the Structure of Supersonic Shear Layers’, with E. S. Oran and K. Kailasanath, Physics of Fluids , Vol. 3, No. 11, 2786-2798, November 1991

36. 'Natural Convection-Radiation Interactions in a Cube Filled with a Nongray Gas', T. Fusegi, K. Ishii and K. Kuwahara, Numerical Heat Transfer, Part A, Vol. 19, 207-217, July 1991

35. 'A Numerical Study of Three-Dimensional Natural Convection in a Differentially Heated Cubical Enclosure', with T. Fusegi, J. Hyun and K. Kuwahara, International Journal of Heat & Mass Transfer, Vol. 34, No. 6, June 1991

34. 'A Mathematical Model for Thermal Analysis of Thin Strip Casting of Low Carbon Steel', with Y. G. Kim and J. Keverian , ASME Journal of Engineering for Industry, Vol. 113, 53-58, February 1991

33. 'Numerical Computations of Fluid Flow and Heat Transfer in Gas Injected Iron Baths', with H. Turkoglu, The Iron and Steel Institute of Japan Journal, Vol. 30, 961-970, November 1990

32. 'Numerical Computations of Fluid Flow and Heat Transfer in a Gas Stirred Liquid Bath', with H. Turkoglu, Metallurgical Transactions B, Vol. 21, 771-781, August 1990

31. 'Interaction Analysis of Natural Convection and Surface/Gas Radiation in a Square Enclosure', with T. Fusegi, ASME Journal of Heat Transfer, Vol. 112, 802-804, August 1990

30. 'Effects of Particle Loading on R.F. Inductively Coupled Plasma Torch Flowfield and Particle Melting Behavior', with D. Wei and D. Apelian, Metallurgical Transactions B Vol. 20, 949-958, December 1989

29. 'A Flow Visualization Study of the Effects of Buoyancy on Taylor Vortices', with K. S. Ball, Physics of Fluids A, Vol. 1, No. 9, 1502-1507, September 1989

28. 'An Experimental Study of Heat Transfer in a Vertical Rotating Annulus', with K. S. Ball, International Journal of Heat & Mass Transfer, Vol. 32, No. 8, 1517-1528, August 1989

27. 'Natural Convection - Radiation Interactions of a Non-gray Gas in a Square Enclosure' with T. Fusegi, Numerical Heat Transfer, Part A, Vol. 15, 303-322, May 1989

26. 'Particle Melting in High Temperature Supersonic Low Pressure Plasma Jets', with D. Y. C. Wei and D. Apelian , Metallurgical Transactions B ,Vol. 20, No. 2, 251-262, April 1989

25. 'Natural Convection of a Variable Property Gas in Asymmetrically Heated Square Cavities', with T. Fusegi , AIAA Journal of Thermophysics and Heat Transfer, Vol. 3, No. 1, 85-87, January 1989

24. 'Numerical Study on Interactions of Turbulent Convection and Radiation in Compartment Fires' with T. Fusegi, Fire Science and Technology, an International Journal, Vol. 8, No. 1, 15-28, December 1988

23. 'Bifurcation Phenomena in Taylor-Couette Flows with Buoyancy Effects', with K. S. Ball , Journal of Fluid Mechanics, Vol. 197, 479-501, December 1988

22. 'Natural Convection around a Buried Heated Cylinder in Saturated Porous Medium:' with H. Shayer ASME Journal of Heat Transfer, Vol. 110, 3, 642-648, and August 1988

21. 'Melting Metal Powder Particles in an Inductively Coupled R. F. Plasma Torch', with D. Wei and D. Apelian, Metallurgical Transactions B, Vol. 19, 213-226, April 1988

20. 'Turbulent Thermal Convection in an Enclosure with Internal Heat Generation 'ASME Journal of Heat Transfer, Vol. 110, 1, 126-132, February 1988

19. 'Melting Powder Particles in a Low Pressure Plasma Jet', with D. Wei and D. Apelian , ASME Journal of Heat Transfer , Vol. 109, 4, 971-976, November 1987

18. 'On the Development of Taylor Vortices in a Vertical Annulus with a Heated Rotating Inner Cylinder', with K. S. Ball, International Journal for Numerical Methods in Fluids, Vol. 7, 857-867, September 1987

17. 'A Microprocessor Based Data Acquisition System for Thermo-Fluids Laboratories', with K. S. Ball, Review of Scientific Instruments, Vol. 58 (4), 657 - 659, April 1987

16. 'Discussion on the paper by T. S. Lee, Numerical Heat Transfer, vol. 7, 77 -87, 1984', with T. Fusegi and K. S. Ball , Numerical Heat Transfer - An International Journal of Computation and Methodology, Vol. 10, 103, July 1986

15. 'Predictions of Fluid Flow and Heat Transfer Problems by the Vorticity-Velocity Formulation of the Navier-Stokes Equations', with T. Fusegi, Journal of Computational Physics, Vol. 65, No. 1, 57 -74, July 1986

14. 'Mixed Convection Flows within a Horizontal Concentric Annulus with Heated Rotating Inner Cylinder', with T. Fusegi and K. S. Ball , Numerical Heat Transfer - An International Journal of Computation and Methodology, Vol. 9, 591 -604, May 1986

13. 'Natural Convection Heat Transfer from a Horizontal Cylinder between Vertical Confining Adiabatic Walls', with F. Karim and I. Namer, ASME Journal of Heat Transfer , Vol. 108, 291-298, May 1986

12. 'A Coupled Solution of the Vorticity-Velocity Formulation of the Incompressible Navier-Stokes Equations', with T. Fusegi, International Journal Numerical Methods in Fluids, Vol. 5, 1017 - 1034, 1985

11. 'Convection Heat Transfer from a Rotating Cylinder', with K. S. Ball, International Journal of Heat and Mass Transfer, Vol. 28 No. 10, 1921-1935, 1985

10. 'An Experimental Study of Mixed Convection around a Rotating Isothermal Cylinder', with K. S. Ball, International Communications in Heat and Mass Transfer, Vol. 12, No. 6, 657-666, November 1985

9. 'Thermal Insulation Evaluation for a Housing Development Project', with J.L. Hamill, ASHRAE Transactions, Vol. 91, Part 1, 240-254, July 1985

8. 'Mixed Convective Flows around a Slowly Rotating Isothermal Sphere', ASME Journal of Heat Transfer, 107, 431-438, May 1985

7. 'On Selecting a Microcomputer for 1800 Freshmen at Drexel' with A. L. Smith et al. Collegiate Microcomputer, Rose-Hulman Institute of Technology, Terra-Haute, Indiana, Vol. 2, No. 2, 107-112, May 1984

6. 'Transient and Steady State Natural Convection in a Porous Medium between Two Concentric Cylinders', with G. N. Facas, ASME Journal of Heat Transfer, 105, 660-663, August 1983

5. 'Natural Convection from Horizontal Cylinders in Interacting Flow Fields', with S. I. Guceri, International Journal of Heat and Mass Transfer Vol. 26, No. 2, 231-244, February 1983

4. 'Laminar and Turbulent Natural Convection in the Annulus between Horizontal Concentric Cylinders', with S.I. Guceri, ASME Journal of Heat Transfer, 104, 621-636, November 1982

3. 'Natural and Mixed Convection Heat Transfer around a Horizontal Cylinder within Confining Walls', with S.I. Guceri, Numerical Heat Transfer - An International Journal of Computation and Methodology, Vol. 5, No. 3, 329-341, September 1982

2. 'Natural Convection from a Horizontal Circular Cylinder-Turbulent Regime', with S.I. Guceri, ASME Journal of Heat Transfer 104, 228-235, May 1982

1. 'Natural Convection from a Horizontal Circular Cylinder - Laminar Regime', with S.I. Guceri, ASME Journal of Heat Transfer, 103, 522-527, August 1981

REFEREED CONFERENCE PAPERS

106. 'Multifield Analysis of a Piezoelectric Valveless Micropump' with E. Sayar, ASME IMECE2011, November, 2011, Denver, Colorado

105. 'Experimental and Numerical Characterization of an Orifice type Cryogenic Pulse Tube Refrigerator', with D. Antao', ASME IMECE2011, November, 2011, Denver, Colorado

104. 'Numerical Studies of Thermoacoustic Convection in Near-critical Fluids', with N. Hasan, ASME IMECE2011, November, 2011, Denver, Colorado

103. 'Numerical Analysis of an Orifice Type Pulse Tube Refrigerator: Optimization for Space Applications' with D. S. Antao, Space Cryogenics Workshop, Coeur d'Alene, ID, June, 2011

102. 'The fluid mechanics of atmospheric pressure discharges' with T. Farouk, and A. Fridman, Proceedings of the 13th Asian Congress of Fluid Mechanics, Dhaka, Bangladesh, December 2010

101. 'Thermoacoustic Refrigeration: New Developments and Challenges' with D. S. Antao, Proceedings of the 13th Asian Fluid Mechanics Conference, **Invited paper,** Dhaka, Bangladesh, December 2010

100. 'Investigation of vortex shedding from a cylinder attached to a piezoelectric cantilever beam' with X. Gao, W.-H. Shih, and W. Y... Shih, Proceedings of the 13th Asian Congress of Fluid Mechanics, Dhaka, Bangladesh, December 2010,

99. ‘Modeling of Acoustically Augmented Electroosmotic Flows in Microchannels’, with E. Sayer, International Mechanical Engineering Congress and Exposition, Vancouver, BC, November 2010

98. ‘Computational Fluid Dynamics Simulations of an Inertance type Pulse Tube Refrigerator' with D. Antao, International Mechanical Engineering Congress and Exposition, Vancouver, BC, November 2010

97. ‘Generation and Propagation of Thermally Induced Acoustic Waves in Supercritical Fluids: Numerical and Experimental Results’ with Z. Lei, IHTC14-22240, Washington, And D. C. August, 2010

96. ‘Convection and Transport in a Differentially Heated Enclosure Filled with Supercritical Carbon Dioxide: Short- and Long-Time Solutions’ with Z. Lei, ASME IMECE, Boston, MA, IMECE2008-68390, and November 2008

95. ‘Heat and mass transfer in a differentially heated enclosure filled with supercritical carbon dioxide’ with U. Prasopchingchana and Z. Lei, ASME IMECE, Boston, MA, IMECE2008-68361, November 2008

94. ‘Experimental and Numerical Studies of Thermally Induced Acoustic Waves in a Closed Enclosure’, with Y. Lin, HT2007-32011, 2007 ASME-JSME Thermal Engineering Summer Heat Transfer Conference, Vancouver, British Columbia, Canada, July 8-12, 2007

93. ‘Numerical Simulation of an Acoustically Driven Resonator with Internal Thin parallel Plates’, With Y. Lin, HT2007-32010, 2007 ASME-JSME Thermal Engineering Summer Heat Transfer Conference, Vancouver, British Columbia, Canada, July 8-12, 200792

92. ‘Numerical Simulations of Heat Transfer in Supercritical Carbon Dioxide’, with Z. Lei, Y. Lin and E. S. Oran, International Heat Transfer Conference, THP-01, 1-10, August 2006, Sydney, Australia

91. ‘Heat Transfer and Flow Characteristics in an Acoustically Driven Resonator with Internal Thin Parallel Plates’, with Y. Lin, International Heat Transfer Conference, THP-02, 1-10, August 2006, Sydney, Australia

90. ‘Simulation of Anthrax Spore Transport and Inactivation in a Room: Scaling Analysis’ with S. Soni and C. N. Haas, ASME ICEME, November 2005, Orlando, FL , 1-8

89. ‘Experimental and Numerical Study of Acoustic Streaming in a Cylindrical Enclosure’ with Y. Lin, National Heat Transfer Conference, July 2005, San Francisco, California, 1-9

88. ‘Numerical Simulation of Piston Effect in Supercritical Carbon Dioxide’ with Z. Lei and E. S. Oran, National Heat Transfer Conference, July 2005, San Francisco, California, 1-9

87. ‘Generation and Propagation of Thermoacoustic Waves in Mildly Supercritical Carbon Dioxide’ with M. K. Aktas, and E. S. Oran, ASME ICEME, November 2004, Anaheim, CA, ICEME 2004-G1222D, 1-9

86. ‘Numerical Simulations of Capillary Electrophoresis Separation Flows in Microchannels’ with F. Yan, ASME ICEME, November 2004, Anaheim, CA, ICEME 2004-G1222D

85. ‘Simulation of Acoustic Streaming in a Resonator’, with M. K. Aktas, National Heat Transfer Conference, HT-FED2004-5617, July 2004, Charlotte, North Carolina

84. ‘Simulation of Contaminant Dispersal in an Apartment Complex’ with S. Soni and C. N. Haas, National Heat Transfer Conference, July 2004, Charlotte, North Carolina

83. ‘Convective Heat Transfer in Differentially Heated Enclosure due to Acoustic Excitations’, with M.K. Aktas, ASME ICEME, November 2003, Washington, DC, ICEME 2003-42134, 1-9

82. ‘Atmospheric Pressure Microplasma Discharge Simulation’, with F. Yan and J. W. Yi, National Heat Transfer Conference, July 2003, Las Vegas, Nevada, HT2003-47511, 1-10

81. ‘Three Dimensional Direct Simulation Monte Carlo Calculations of Non-Continuum Gas Flows’, with F. Yan , and J. R Johnson, ASME IMECE, HTD Vol. 4, New Orleans, Louisiana, November 2002 , 1-8

80. ‘Discontinuous Wall Temperature Distribution Induced Gas Flow in an Enclosure at High Knudsen Numbers’ with F. Yan, Proceedings of the International Heat Transfer Conference, August 2002, Grenoble, France, 513-518

79. ‘Interaction of Thermoacoustic Waves and Buoyancy-induced Flows in an Enclosure’, with M. Aktas, Proceedings of the International Heat Transfer Conference, August 2002, Grenoble, France, 573-578

78. ‘Numerical Simulations of Gas/Liquid Transport in Centrifuges’, with F. Yan 5th ISHMT-ASME Heat and Mass Transfer Conference, Calcutta, India, January 2002, 781 - 793

77. ‘Numerical Predictions of Naturally Induced Fire Whirls’, with K. McGrattan and R. Rehm, ASME IMECE, Orlando, Florida, November 2000, HTD-Vol. 366-5, 73-80

76. ‘Computations of Mixing of Two Parallel Gas Streams in Microchannels using Direct Simulation Monte Carlo Method’, with F. Yan, Proceedings, 22nd Rarefied Gas Dynamics Conference (Ed: T. J. Bartel and M. A. Gallis), Sydney, Australia, July 2000, 510-517

75. ‘Particle Simulation of CH_4/H_2 RF Glow Discharges for DLC Film Deposition ‘, with K. Nagayama, Proceedings, 22nd Rarefied Gas Dynamics Conference (Ed: T. J. Bartel and M. A. Gallis), Sydney, Australia, July 2000, 230-237

74. ‘Computations of Low Pressure Fluid Flow and Heat Transfer in Ducts using Direct Simulation Monte Carlo Method’, with F. Yan, ASME IMECE, Nashville, Tennessee, November 1999, HTD-Vol. 364-4, 103-111

73. ‘Thermal Conductivity Measurement of Thin Diamond Films Using a Modified Thermal Comparator Method’, with K. R. Cheruparambil, J. E. Yehoda and N. Macken, ASME IMECE, Nashville, Tennessee, November 1999, HTD-Vol. 364-3, 61-69

72. ‘Modeling of Solid Particle Flow, Heat Transfer, and Mass Transfer in Rotary Kilns’, with L. Yang, A. A. Boateng, ASME IMECE, Anaheim, Ca. November 1998, HTD-Vol. 361-1, 239-250

71. ‘Heat Transfer in Low Pressure (High Knudsen Number) Developing Flows through Parallel Plates’, with K. Nagayama and C.K. Oh, International Heat Transfer Conference, August 1998, Kyongju, Korea, Vol. 3, 127-131

70. ‘Two- and Three-phase Flows in Bubble Columns: Numerical Predictions and Measurements’, with D. Mitra-Majumdar , Y.T. Shah, N. Macken and Y. K. Oh, International Heat Transfer Conference, August 1998, Kyongju, Korea, Vol. 2, 187-191

69. ‘Thermal Conductivity of DLC (Diamond-like Carbon) Films and its Relation to Mechanical and Chemical Properties’, with C. Mesyngier, Y.H. Lee, J.W. Yi and D.W. Brown, Proceedings, 24th International Thermal Conductivity Conference, October, 1997, Pittsburgh, Pennsylvania (Eds. P. Gaal and D. E. Apostolescu), 538-547

68. ‘Modeling of Two-Phase (air-Water) Flow through a Jet Bubble Column’, with D. Mitra-Majumdar and Y.T. Shah, National Heat Transfer Conference, August 1997, Baltimore, Maryland, HTD-Vol. 342, 87-96

67. ‘Modeling of Thermal Treatment of Solid Wastes in Electric Arc Melters for Materials Recovery‘with A. Wenger and J. K. Wittle, International Mechanical Engineering Congress and Exposition, November 1996, Atlanta, Georgia, HTD-Vol. 335, 121-128

66. ‘Heat Transfer from a Liquid Bath due to an Impinging Gas Jet: Effect of Liquid Prandtl Number ‘ with F. Qian, R. Mutharasan and N. Macken, International Mechanical Engineering Congress and Exposition, November 1996, Atlanta, Georgia, HTD-Vol.333. 181- 194

65. ‘Non-Gray Gas Radiation - Convection in a Channel Flow’, with C. Mesyngier, National Heat Transfer Conference, August 1996, Houston, Texas, HTD-Vol.325, 103-114

64. ‘Modeling a Direct-Contact Condenser for Metal Recovery’, with H. Turkoglu and L. Yang, National Heat Transfer Conference, August 1996, Houston, Texas, HTD-Vol.326, 47-62

63. ‘Heat Transfer from a Liquid Pool due to an Impinging Gas Jet ‘ with F. Qian, R. Mutharasan and N. Macken, 2nd ISHMT-ASME Heat and Mass Transfer Conference, Surathkhal, India, 575-580, December 1995

62. ‘Modeling of Gas-Liquid-Solid Flows through Vertical Columns’ with D. Mitra-Majumdar and Y.T. Shah, 1995 Int. Mechanical Engineering Conf. and Exhibition, San Francisco, California, HTD-Vol.317-1, 227-234, November, 1995

61. ‘Numerical Study of Heat Transfer from a Liquid Pool due to an Impinging Gas Jet’, with F. Qian, R. Mutharasan , 1995 National Heat Transfer Conference, Portland, Oregon, HTD-Vol. 306, 51-62, August 1995

60. ‘Numerical Study of Thermoacoustic Convection in a Cavity’, with T. Fusegi and E. Oran, 1995 National Heat Transfer Conference, Portland, Oregon, HTD-Vol. 305, 155-164, August 1995

59. ‘Modeling of Granular Flow and Heat Transfer of Contaminated Soil within a Rotary Calciner’, with L. Yang, 1995 National Heat Transfer Conference, Portland, Oregon, HTD-Vol. 308, 11-20, August 1995

58. ‘Natural and Mixed Convection Heat Transfer in a Vertical Annulus with a Square Inner Cylinder’, with R. J. Giammaruti, Tenth International Heat Transfer Conference, Brighton, England, 12-NM-10, August 1994

57. ‘Numerical Modeling of Two-Phase Flows through a Tee Junction’, with V. Sharma, Proceedings, 1st ISHMT-ASME Heat and Mass Transfer Conference, 505-510, Bombay, India, January 1994

56. ‘A Numerical Study of an Industrial Hydrogen Sulfide Burner with Air- and Oxygen-based Operations’, with M. Sidawi and U. Parekh, National Heat Transfer Conference, Atlanta, Georgia, HTD-Vol. 250, 227-234, August 1993

55. ‘Modeling of Fluid Flow and Heat Transfer in the Plasma Region of the Electric Arc Furnace’, with F. Qian and R. Mutharasan, National Heat Transfer Conference, Atlanta, Georgia, HTD-Vol. 248, 53-64, August 1993

54. ‘Effects of Nitrogen Removal in an Industrial Furnace - A Three Dimensional Study’, with M. Sidawi, National Heat Transfer Conference, Atlanta, Georgia, HTD-Vol.250, 173-184, August 1993

53. ‘A Numerical and Experimental Study of the Turbulent Combustion of Natural Gas with Air and Oxygen in an Industrial Furnace’, with M. Sidawi and C. E. Baukal, 2nd Int. Conference on Combustion Technologies for Clean Environment, Lisbon, Portugal, Vol. 1, 9-2 - 9-15, July 1993

52. ‘Three-Dimensional Taylor Couette Flows in a Vertical Annulus with a Heated Rotating Hexagonal Cylinder’, with L. Yang, ASME Winter Annual Meeting, Anaheim, California, HTD-Vol.219, 57-64, November 1992

51. ‘Modeling Oxygen - Natural Gas Combustion in an Industrial Furnace’, with M. Sidawi, ASME Winter Annual Meeting, Anaheim, California, HTD-Vol. 223, 55-62, November 1992

50. ‘Numerical Simulation of Subcooled and Low Quality Saturated Forced Convective Boiling Flows’, with J. Lai, National Heat Transfer Conference, San Diego, California, HTC-Vol.6, 12-20, August 1992

49. ‘Predictions of Silicon Deposition in a Barrel Type CVD Reactor under Microgravity Conditions’, with L Yang, National Heat Transfer Conference, San Diego, California, HTD-Vol.206-3, 1-12, August 1992

48. ‘Mixed Convection Heat Transfer in a Vertical Rotating Annulus with Side-Port Injection’, with R. J. Giammaruti, ASME/AIChE National Heat Transfer Conference, Minneapolis, 91-HT-14, Minnesota, July 1991

47. ‘Impingement Cooling of Simulated Electronic Components in the Presence of a Crossflow’, with R. J. Giammaruti and J. P. Carrol, ASME/AIChE National Heat Transfer Conference, Minneapolis, Minnesota, HTD-Vol.163, 19-26, July 1991

46. ‘3-D Natural Convection-Radiation Interactions in a Cube Filled with a Gas-Soot Mixture’, with T. Fusegi and K. Kuwahara, Third International Symposium on Fire Safety Science Proceedings, Edinburgh, Scotland, U. K., 365-374, July 1991

45. ‘Transient Three-Dimensional Natural Convection in a Differentially Heated Cubical Enclosure’, with T. Fusegi, J. M. Hyun and K. Kuwahara, ASME-JSME Thermal Engineering Joint Conference, Vol. 1 83-88, Reno, Nevada, March 1991.

44. ‘Volume Fraction, Bubble Frequency and Temperature Measurements in Gas Injected Liquid Baths’, with H. Turkoglu, ASME Winter Annual Meeting, FED-Vol. 100, 31-38, Dallas, Texas, November 1990

43. ‘A Numerical Study of Three-Dimensional Natural Convection in a Differentially Heated Cubical Enclosure’, with T. Fusegi, J. M. Hyun and K. Kuwahara, ASME Winter Annual Meeting, HTD-Vol. 157, 49-54, Dallas, Texas, November 1990

42. ‘Prediction of Epitaxial Silicon Deposition in an Idealized Barrel Reactor’, with L. Yang and R. Mahajan, 1990 ICHMT Symposium on Manufacturing and Materials Processing, Dubrovnik, Yugoslavia, August 1990

41. ‘Three-Dimensional Study of Convection-Radiation Interactions in a Cubical Enclosure filled with a Non-Gray Gas’, with T. Fusegi, K, Ishii and K. Kuwahara, Ninth International Heat Transfer Conference, Jerusalem, Israel, 21-R-9, 421-426, August 1990

40. ‘Aspect and Radius Ratio Effects on Natural Convection in a Vertical Annulus’, with K. S. Ball and V. C. Dixit, Ninth International Heat Transfer Conference, Jerusalem, Israel, 5-NC-18, 585-590, August 1990

39. ‘Effects of Process Parameters on the Deposition Rates in a Vertical CVD Reactor’, with L. Yang, ASME Winter Annual Meeting, HTD-Vol. 123, 227-236, San Francisco, December 1989

38. ‘Mixing and Dispersion Characteristics in a Gas Injected Cylindrical Liquid Bath’ with H. Turkoglu, ASME Winter Annual Meeting, FED-Vol. 90, 63-71, San Francisco, December 1989

37. ‘Heat Flux Measurements for Metal Castings on a Spray Cooled Substrate’, with Y. G. Kim, D. Apelian and J. Pennucci, National Heat Transfer Conference, Philadelphia, Pennsylvania , HTD-Vol.112, August 1989

36. ‘Numerical Simulation of Convective Film Boiling in a Rod Bundle’ with J. Lai, National Heat Transfer Conference ANS Proceedings, Philadelphia, Pennsylvania, HTC-Vol. 4, 173-181, August 1989

35. ‘Stability of Three Dimensional Flows in a Horizontal Annulus with a Heated Rotating Inner Cylinder’, with L. Yang, National Heat Transfer Conference, Philadelphia, Pennsylvania , HTD-Vol.107, 349-356, August 1989

34. ‘Heat Transfer in a Vertical Annulus with a Square Inner Cylinder’ with V. C. Dixit, National Heat Transfer Conference, Philadelphia, Pennsylvania, HTD-Vol. 112, 77-82, August 1989

33. ‘Numerical Computations of Fluid Flow and Heat Transfer in a Gas Injected Molten Iron Bath’, with H. Turkoglu and C. E. Baukal , 72nd Steelmaking Conference Proceedings, Chicago, Illinois, 3-11, April 1989

32. ‘A Numerical Study on the Solidification Processes in a Twin-belt Caster’, ASME Winter Annual Meeting, Chicago, Illinois, Symposium on Phase Change Problems in Materials Processing , HTD -104, 101-108, November- December 1988

31. ‘Heat Transfer in a Vertical Rotating Annulus’ with K. S. Ball and V. C. Dixit, First World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics, Dubrovnik, Yugoslavia, 1594-1603, September 1988

30. ‘Numerical Computations of Fluid Flow and Heat Transfer in a Gas Stirred Liquid Bath’, with H. Turkoglu, National Heat Transfer Conference, Houston, Texas, HTD - 96, Vol. 3, 133-139, July 1988

29. ‘Modeling of a Twin-belt Strip Casting Process’ with Y. Kim and D. Apelian, Proceedings, 4th Conference on Modeling of Casting and Welding Processes, Palm Coast, Florida, 265-274, April, 1988

28. ‘Thermal Plasma Deposition of Metal Particles’, with D. Wei and D. Apelian, ASME Winter Annual Meeting, Boston, Massachusetts, Interdisciplinary Issues in Materials Processing and Manufacturing, Vol. 2, 693-704, December 1987

27. ‘Effects of Particle Loading on R.F. Inductively Coupled Plasma Torch Flowfield and Particle Melting Behavior’, with D. Wei and D. Apelian, ASME Winter Annual Meeting, Boston, Massachusetts, Interdisciplinary Issues in Materials Processing and Manufacturing, Vol. 1, 63-76, December 1987

26. ‘Bifurcation Phenomena in Mixed Convection Flows in a Rotating Annulus’, with K. S. Ball, ASME Winter Annual Meeting, Boston, Massachusetts, HTD- Vol. 94, AMD-Vol. 89, 121 - 125, December 1987

25. ‘Atomization in a Turbulent Shear Layer: Preliminary Measurements’, with K. V. Tallio, S. Marakovits and A. M. Mellor, Joint Western States and Japanese Sections Combustion Institute Meeting, Proceedings, 180-182, November 22-25, 1987

24. ‘Turbulent Natural Convection - Radiation Interactions in a Square Enclosure Filled with a Gas-soot Mixture’, with T. Fusegi, The Combustion Institute (Eastern Section) Fall Technical Meeting, National Bureau of Standards, Gaithersburg, Maryland, Proceedings, 90-1 - 90-4, November 2-6, 1987

23. ‘Spray Evaporation Studies in a Confined Turbulent Shear Layer’ with W. Lau, S. Marakovits and A. M. Mellor, The Combustion Institute (Eastern Section) Fall Technical Meeting, National Bureau of Standards, Gaithersburg, Maryland, Proceedings, 27-1 - 27-4, November 2-6, 1987

22. ‘Atomization in a Turbulent Shear Layer: Preliminary Measurements’, with K. V. Tallio, S. Marakovits and A. M. Mellor, 24th JANAF Combustion Meeting, Monterey, California, Vol. 2, 151-156, October 1987

21. ‘Radiation-Turbulent Natural Convection Interactions of a Non-Gray Gas in a Square Cavity’ with T. Fusegi, 5th International Conference on Numerical Methods in Thermal Problems, Montreal, Canada, Vol. 1, 321-331, July 1987

20. ‘Radiation-Convection Interactions of a Non-Gray Gas in a Square Enclosure’ with T. Fusegi, National Heat Transfer Conference, Pittsburgh, Pennsylvania, HTD - Vol. 73, 63-68, August 1987

19. ‘A Numerical Investigation of Steady Convective Flows in Partial Enclosures with Radiative Heat Transfer’ with T. Fusegi, Proceedings, 2nd ASME-JSME Thermal Engineering Joint Conference, Honolulu, Hawaii, Vol. 1, 335-342, March 1987

18. ‘Spray Evaporation Studies in a Prevaporizing-Premixing Fuel Air Passage’ with W. B. Alber and A. M. Mellor, Proceedings, 2nd ASME-JSME Thermal Engineering Joint Conference, Honolulu, Hawaii, Vol. 1, 159-164, March 1987

17. ‘Melting Powder Particles in a Low Pressure Plasma Jet’, with D. Wei and D. Apelian, ASME Winter Annual Meeting, Anaheim, California, 86-WA/HT-91, December 1986

16. ‘Natural Convection - Radiation Interaction in a Cavity with Localized Cooling and Heating’, with T. Fusegi, ASME Winter Annual Meeting, Anaheim, California, HTD Vol. 62, 81 -88, December 1986

15. ‘Thermal Analysis of Thin Strip Casting of Low Carbon Steel’ , with Y. Kim and J. Keverian, ASME Winter Annual Meeting, Anaheim, California, PED -Vol. 20, 277-288 , December 1986

14. ‘Numerical Studies of Mixed Convection Flows in the Annulus between Vertical Concentric Cylinders with Rotating Inner Cylinder’, with K. S. Ball, Eighth International Heat Transfer Conference, San Francisco, CA, Vol. 2, 435-440, August 1986

13. ‘A Three Dimensional Study of Natural Convection in the Annulus between Horizontal Concentric Cylinders’ , with T. Fusegi, Eighth International Heat Transfer Conference, San Francisco, CA, Vol. 4, 1576-1580, August 1986

12. ‘A Numerical and Experimental Investigation of Mixed Convection Heat Transfer around a Rotating Heated Cylinder’ with K. S. Ball, ASME Winter Annual Meeting, Miami Beach, Florida, HTD-Vol.53, 63- 70, November 1985

11. ‘Natural Convection Cooling of Heated Cylinders in Narrow Enclosures’, with A. Gambone and K. Happ, Proceedings, Fifth International Electronics Packaging Conference, Orlando, Florida, 487-495, October 1985

10. ‘An Evaluation of the Vorticity-Velocity Formulation of the Navier-Stokes Equations in Predicting Heat Transfer Problems’, with T. Fusegi, ASME/AIChE National Heat Transfer Conference, Denver, Colorado, 85-HT-9, August 1985

9. ‘Natural Convection around a Buried Heated Cylinder in a Saturated Porous Medium’, with H. Shayer, ASME/AIChE National Heat Transfer Conference, Denver, Colorado, HTD-Vol. 46, 181-190, August 1985

8. ‘Natural Convection in a Thermally Stratified Square Cavity with Localized Heating from Below’, with T. Fusegi, ASME/AIChE National Heat Transfer Conference, Denver, Colorado, 85-HT-34, August 1985

7. ‘Effects of Coil Location and Injection Flow Rate in an Inductively Coupled RF Plasma Torch’, with D. Apelian and D. Wei, AIAA 18th Fluid Dynamics, Plasma Dynamics and Lasers Conference, Cincinnati, Ohio, AIAA-85-1634, July 1985

6. ‘Thermal Insulation Evaluation for a Housing Development Project’, with J.L. Hamill, ASHRAE Society Meetings, Chicago, Illinois, Paper No. 2873, January 1985

5. ‘Numerical Predictions of Propane Oxidation in a Turbulent Recirculating Flow Combustion Chamber’, with K. S. Ball and R. S. Cohen, ASME/AIChE National Heat Transfer Conference, Niagara Falls, New York, 84-HT-102, August 1984

4. ‘Turbulent Thermal Convection in a Confined Heat Generating Fluid Layer’, with F.A. Kulacki and S.I. Guceri, ASME/AIChE National Heat Transfer Conference, Niagara Falls, New York, 84-HT-59, August 1984

3. ‘Thermal Performance of Insulated Wall Systems with Metal Studs’, with D. C. Larson, 18th IECEC, Orlando, Florida, vol. 5, 2003 - 2009, August 1983

2. ‘Transient and Steady State Natural Convection in a Porous Medium between Two Concentric Cylinders’ with G. N. Facas, ASME Winter Annual Meeting, Phoenix, Arizona, HTD-Vol. 22, 19-34, November 1982

1. ‘Laminar and Turbulent Natural Convection in the Annulus between Horizontal Concentric Cylinders’, with S.I. Guceri, ASME-AIChE National Heat Transfer Conference, HTD-Vol. 16, 143-150, August 1981

NON-REFEREED CONFERENCE PAPERS AND REPORTS

76. ‘Acoustically Generated Flows in Flexural Plate Wave Sensors: a Multifield Analysis’ with E. Sayar, APS DFD meeting, Baltimore, Maryland, October, 2011

75. ‘Non-Linear High Amplitude Oscillations in Wave-shaped Resonators’, with D. Antao, APS DFD meeting, Baltimore, Maryland, October, 2011

74. ‘Convective Thermal Transport in Near-Critical Fluids’, with N. Hasan, APS DFD meeting, Baltimore, Maryland, October, 2011

73. ‘Experimental and numerical investigations of cryogenic pulse tube refrigerators’, ***Invited speaker***, Minsk International Seminar “Heat Pipes, Heat Pumps, Refrigerators, Power Sources”, Minsk, Belarus, September, 2011

72. ‘Flow and Heat Transfer Processes in an Inertance type Pulse Tube Refrigerator’, with D. Antao, 16th International Cryocooler Conference, Atlanta, Georgia, May 2010

71. ‘Characterization of Atmospheric Pressure Plasma Discharges for High-Rate Thin Film Deposition’, Sixth Asia-Pacific International Symposium on the Basics and Applications of Plasma Technology’, ***Invited speaker***, Hsinchu, Taiwan, December 14-16, 2009

70. ‘Simulation of Heat and Mass Transfer in Supercritical Carbon Dioxide’ B. Farouk, Z. Lei and E. S. Oran, APS/DFD Meeting, San Antonio, TX, November 22-25, 2009

69. ‘Simulation of Atmospheric Pressure Non-thermal Plasma Discharges for Surface Decontamination Applications’ with T. Farouk, NATO Advanced Study Institute (Plasma Decontamination), Cesme, Turkey, September, 2007

68. ‘Simulation of Flows and Heat Transfer in a Supercritical Carbon Dioxide Filled Enclosure', with Lei, Z., Bulletin of the American Physical Society, Vol. 51, No. 9, p. 119, APS Division of Fluid Dynamics Meeting, Tampa Bay, FL, November 2006

67. ‘Atmospheric Pressure DC and RF Plasma for Materials Processing’, with Staack, D., Fridman, A. and Gutsol, A., Bulletin of the American Physical Society, Vol. 51, No. 7, p. 359, APS-Division of Plasma Science Meeting, Philadelphia, PA, November 2006.

66. ‘Simulation of Electrokinetically Driven Flows in 3-d Rectangular Microchannels: Effect of Zeta Potential on Sample Band Broadening’, with Lee, D-H, and Noh, H., the Eighteenth International Symposium on Transport Phenomena, Daejeon, Korea, 27-30 August, 2007

66. ‘A Computational Fluid Dynamics Approach for Optimization of a Sensor Network’, with Hamel, D. Chwastek, M., Dandekar, K, Kam, M., IMS 2006 - IEEE International Workshop on Measurement Systems for Homeland Security, Contraband Detection and Personal Safety, Alexandria, VA, USA, 1-10, October 2006

65. ‘Design, Construction and Operation of a Traveling Wave Pulse Tube Refrigerator’ with S. Rotundo, G. Hughel, A. Rebarchak and Y. Lin, Cryocoolers 14 (Eds.: S. D. Miller and R. G. Rose, Jr.), ICC Press, June, 2006, 149-156

64. ‘Development and Validation of a Numerical Model for Gas/Liquid Flow in a Countercurrent Bubble Column Reactor’ Hydrodynamics’ with T. A. Bartrand and C. N. Haas, Third International Conference on Computational Methods in Multiphase Flow, Oct. 31 – Nov. 2, 2005, Portland, Maine

63. ‘Atmospheric Pressure DC Micro Glow-Discharge’ with D. A. Staack, A. Fridman and A. Gutsol, 17th International Symposium on Plasma Chemistry, Toronto, Canada, August 2005 , pp. 281-282

62. ‘E. coli Inactivation with Peroxyacetic Acid: Use of CFD for Wastewater Disinfection Process analysis’ with D. Santoro, T. Bartrand, D. J. Greene, C. N. Haas, CRE-X, Mexico, August 2005

61. ‘Effect of Tracer Density on Reactor Hydrodynamics’ with T. A. Bartrand and C. N. Haas, Water Environment Federation: Disinfection 2005, Phoenix, Arizona, February, 2005

60. ‘Atmospheric Pressure DC Plasma Microdischarges: A Characterization Study’ with F. Yan, J. W. Yi and A. Rebarchak, Second International Workshop on Microplasmas, Stevens Institute of Technology, Hoboken, NJ, p. 95, October 6-8, 2004

59. ‘Acoustically Excited and Thermoacoustically Induced Flows’ with M. Aktas, ICME 2003, Dhaka, Bangladesh, December 2001, 97-106

58. ‘Numerical Simulation of Thermoacoustic Wave Generation and Propagation in Water’, with M. Aktas , Annual Meeting of the American Physical Society, Fluid Dynamics Division, Vol. 48, No. 10, 241, November, 2003

57. ‘ Prediction of Acoustic Streaming Flows Generated by Standing Waves in Enclosures’, with M. Aktas and E. S. Oran, Annual Meeting of the American Physical Society, Fluid Dynamics Division, Vol. 48, No. 10, 249, November, 2003

56. ‘Numerical Investigation of the Effects of Reactor Configuration on the Efficacy of Microbial Inactivation’. with D. G. Greene, and C. N. Haas, Proceedings of the WEF Annual Conference, Los Angeles, CA. May, 2003

55. ‘CFD Design Approach for Chlorine Disinfection Processes’, with D. G. Greene, and C. N. Haas, Proceedings of the AWWA Annual Conference, Anaheim, CA, March 2003

54. ‘Numerical Modeling of an Electrostatically Driven Liquid Meniscus in the Cone-Jet Mode’, with F. Yan and F. Ko, Annual Technical Conference on the Fiber Society, Book of Abstracts, 7-10, Natick, MA, October 2002

53. ‘Hydroelectrodynamic Modeling of the Electrospinning Process’, with F. Yan and F. Ko, TEXCOMP-6, International Conference on Textile Composites, Philadelphia, PA, September 2002

52. ‘Interaction of Thermoacoustic Waves and Buoyancy-induced Flows in an Enclosure’ with M. Aktas, ICME 2001, Dhaka, Bangladesh, December 2001, 97-106

51. ‘Non-Continuum Transport Processes in Microscale and Vacuum Systems’ with F. Yang, BSME-ASME International Conference on Thermal Engineering, Dhaka, Bangladesh, December 2001, 52-6

50. ‘Disinfection Reactor Performance at Low Reynolds Numbers’, with D. J. Greene and C. N. Haas, International Water Association World Congress, Berlin, Germany, July 2001

49. ‘Simulation of Smoke Transport in a Standard Test Fire’ with K.B. McGratten and G. W. Mulholland, Proceedings, 12th International Conference on Automatic Fire Detection, 482-493, March 2001

48 ‘Fire Detection Performance Predictions in a Simulated Multi-Room Configurations’, with T. Cleary, M. Donnelly, and G. W. Mulholland, Proceedings, 12th International Conference on Automatic Fire Detection, 455-469, March 2001

47. ‘Numerical Simulations of Liquid Transport in a Microchannel Connected Centrifuge’ with F. Yan, Annual Meeting of the American Physical Society, Fluid Dynamics Division, Vol. 45, No. 9, 151, November, 2000

46. ‘Two-Dimensional Fluid Model for Methane Discharge in an Inductively Coupled Chemical Vapor Deposition Reactor’ with K. Bera, IEEE International Conference on Plasma Sciences, Monte Rey, California, 147, June 1999

45. ‘Particle and Fluid Modeling of RF Discharges for Materials Processing’, 2nd International Symposium on Heat and Mass Transfer under Plasma Conditions, Antalya, Turkey, April 21- 23, 1999 (in press)

44. ‘Acoustic Wave Propagation in a Composite (Water/Air/Water) Medium’, with P. Narayan, M. A. Wheatley, and E. S. Oran, Annual Meeting of the American Physical Society, Fluid Dynamics Division, Vol. 43, No. 9, 2056, November, 1998

43. ‘Acoustically Generated Flow and Temperature Fields in a Rectangular Cavity’, with E. S. Oran, Annual Meeting of the American Physical Society, Fluid Dynamics Division, Vol. 43, No. 9, 2055, November, 1998

42. ‘Simulation of Two-dimensional Radio-Frequency Methane Plasma: Comparison with Experiments’, with K. Bera. W. J. Yi and Y.H. Lee, IEEE International Conference on Plasma Sciences, Raleigh, North Carolina, 268-269, June 1998

41. ‘Thermoacoustic Waves in a Cavity’, with E. S. Oran, Annual Meeting of the American Physical Society, Fluid Dynamics Division, Vol. 42, No. 10, 22263, November, 1997

40. ‘Effect of Reactor Pressure and Cathode Potential on Two-dimensional Radio-Frequency Methane Discharge in Cylindrical Coordinates’ with K. Nagayama, and Y. H. Lee, Book of Abstracts, International Symposium on Plasma and Flow Simulation for Materials Processing, Tohoku University, 35-37, July 1997

39. ‘Two-dimensional Modeling of RF Methane Glow Discharge’ with K. Bera, and Y. H. Lee, Proceedings International Conference on Fluid Engineering, Vol. II, JSME Centennial Grand Congress, Tokyo, 783-787, July , 1997

38. ‘Particle Simulation of CH_4/H_2 Radio-Frequency Glow Discharges for Diamond-like Carbon Film Deposition’ with K. Nagayama, and Y. H. Lee, Proceedings International Conference on Fluid Engineering, Vol. II, JSME Centennial Grand Congress, Tokyo, 977 - 981, July , 1997

37. ‘Modeling Combustion and Fly Ash Production in a Pulverized Coal-Fired Furnace’, with K. A. Chandratre and W. Fuchs, Technical Meeting, Eastern States Section of the Combustion Institute, Hilton Head, South Carolina, 297-300, December, 1996

36. ‘Modeling of CH_4 RF Discharge for Carbon Film Deposition’, with K. Nagayama and Y.H. Lee, IEEE International Conference on Plasma Sciences, Abstracts, 183, Boston, Massachusetts, June 1996

35. ‘Two-dimensional Modeling of RF Glow Discharge’, with K. Bera and Y.H. Lee, IEEE International Conference on Plasma Sciences, Abstracts, 198, Boston, Massachusetts, June 1996

34. ‘Modeling of Thermal Treatment of Hazardous Solid Wastes in a DC Arc Melter’, with A. Wenger, J.K. Wittle and P.J. Wilver, International Symposium on Environmental Technologies: Plasma Systems and Applications, Vol. II, 161-172, Atlanta, Georgia, October 1995

33. ‘Deposition and Characterization of DLC/SiO_2 Nanocomposite Prepared by Ion-Assisted PECVD’, with J.H. Lee, D.S. Kim and Y.H. Lee, Third International Applied Diamond Conference, NIST Special Publications 885, 727-730, August 1995, Gaithersburg, Maryland

32. ‘Modeling of RF Plasma Discharges of Polyatomic Gases for Carbon Film Deposition’ , with K. Nagayama and Y.H. Lee, 12th Int. Symposium on Plasma Chemistry, Vol. 4, 2247-2253, August 1995, Minneapolis, Minnesota

31. ‘Impinging Gas Jet on a Liquid Surface: Numerical and Experimental Studies’, with F. Qian and R. Mutharasan, 1995 EPD Congress, 127-141, February, 1995, Las Vegas, Nevada

30. ‘Studies of Deformations in a Liquid Bath due to Direct Impinging Gas Jet’, with F. Qian and R. Mutharasan, Proceedings, 1994 EPD Congress, 1147-1162, February, 1994, San Francisco, California

29. ‘Numerical Investigation of Turbulent Mixing in a Jet Bubble Column’, with Y. T. Shah and D. Mitra-Mazumdar, 18th Technical Conference on Coal Utilization and Fuel Systems, 185-196, Clearwater, Florida, April, 1993

28. ‘A Comparison of Air-fuel Firing to Oxy-fuel Firing in a Glass Melting Furnace’, with B. Herb, R. Saunderson and D. Winchester, Users Group Meeting Proceedings, creare.x Inc., 326-344, September 1991

27. ‘Modeling of Combustion Processes in an Industrial Furnace’, with M. Sidawi and J. Appukutty, Proceedings, Fall Meeting of the Combustion Institute (Eastern Section), Cornell University, 50-1 - 50-4, October 1991

26. ‘Three Dimensional Predictions of Silicon Deposition in a Barrel Type CVD Reactor’, with L. Yang, TMS Annual Meeting, New Orleans, Louisiana, Materials Processing in the Computer Age (Eds. V. R. Voller, M.S. Stachowicz and B. G. Thomas), 123-129 February 1991

25. ‘Three Dimensional Simulation of Periodic Natural Convection in a Differentially Heated Cubical Enclosure’, with T. Fusegi, J. M. Hyun and K. Kuwahara, Third Brazilian Thermal Science Meeting Proceedings, Itapema, Santa Catarinia, Vol. 1, 129-133, December, 1990

24. ‘Buoyancy Induced Instabilities in an Annulus with a Rotating Noncircular Inner Cylinder’, with L. Yang, Annual Meeting of the American Physical Society, Fluid Dynamics Division, Ithaca, New York, Vol. 35, No. 10, 2299, November, 1990

23. ‘Three-Dimensional Natural Convection-Radiation Interactions in a Differentially Heated Cube Filled with Gas-Soot Mixtures’ with T. Fusegi and K. Kuwahara, Eurotherm Seminar on Heat Transfer in Radiation and Combustion Systems, Springer-Verlag, 602-619, October, 1990.

22. ‘A Direct Simulation of Natural Convection in a Differentially Heated Cubical Enclosure’, with T. Fusegi and K. Kuwahara, International Symposium on Engineering Turbulence Modeling and Measurements, Dubrovnik, Yugoslavia, 261-268, September, 1990

21. ‘Numerical Simulations of the Structure of Supersonic Shear Layers’, with E.S. Oran and K. Kailasanath, Naval Research Laboratory Memorandum Report 6667, July 1990

20. ‘Three-Dimensional Natural Convection-Radiation Interactions in a Cube Filled with a Non-Gray Gas’, with T. Fusegi, K. Ishii and K. Kuwahara, First International Conference on Advanced Computational Methods for Heat Transfer, Southampton, United Kingdom, Vol. 1, 157-168, July 1990

19. ‘Effects of Vessel Aspect Ratio on the Mixing Rate in a Cylindrical Steel Bath with Vertical Argon Injection’, with H. Turkoglu, 73rd Steelmaking Conference, Detroit, Michigan, 377-385, March 1990

18. ‘Interaction Analysis of Natural Convection and Surface/Gas Radiation in a Square Enclosure’, with T. Fusegi, 6th International Conference on Numerical Methods in Thermal Problems, Swansea, U. K., Vol. 1, 588 - 599 , July 1989

17. ‘Numerical Simulation of the Structure of Supersonic Shear Layers’, with E. S. Oran and K. Kailasanath, Annual Meeting of the American Physical Society, Fluid Dynamics Division, Vol. 33, No. 10, 22232, November, 1988

16. ‘Radiation-Turbulent Natural Convection Interactions of a Non-Gray Gas in a Square Cavity’, with T. Fusegi, 5th International Conference on Numerical Methods in Thermal Problems, Montreal, Canada, Vol. 1, 321-331, July 1987

15. ‘A Critical Analysis of Proposed Plasma Jet Models to Predict Temperature and Velocity Profiles’ with D. Wei and D. Apelian, Materials Research Society Symposium, Anaheim , California, 41-47, April 1987

14. ‘Effect of Particle Loading on DC Plasma Jet Profile during Low Pressure Plasma Deposition’ with D. Wei and D. Apelian, Materials Research Society Symposium, Anaheim, California, 77-85, April 1987

13. ‘Melting Behavior of Powder Particles in a Supersonic Plasma Jet’, with D. Apelian and D. Wei, Engineering Foundation Conference on Welding and Casting Processes, Santa Barbara, California, 79 -94, January 1986

12. ‘Analysis of a Twin Belt Casting Process’, with Y.G. Kim and D. Apelian, Engineering Foundation Conference on Welding and Casting Processes, Santa Barbara, California, 169 - 178 January 1986

11. ‘Numerical Solutions in Laminar and Turbulent Natural Convection’, Proceedings, NATO Advanced Research Workshop on Natural Convection - Fundamentals and Applications, (Eds. Kakac, S., Aung, W. and Viskanta, R.) Hemisphere Publishing Corp., 615-654, August, 1985

10. ‘A Comparison of Particle Melting and Particle/Plasma Interaction in RF and DC Plasmas: A Modeling Approach’, with D. Wei and D. Apelian, Proceedings, International Symposium on Plasma Chemistry, Eindhoven, The Netherlands, Vol. 3, 923-930, July 1985

9. ‘Effects of Injector Location and Geometry on the Heat Transfer Characteristics of Metal Particles in an RF Plasma’, with D. Wei and D. Apelian, Proceedings, International Symposium on Plasma Chemistry, Eindhoven, The Netherlands, Vol. 3, 810-816, July 1985

8. ‘Laminar Mixed Convection in the Annulus between Horizontal Concentric Cylinders with Rotating Inner Cylinder’, with K. S. Ball, Proceedings, Fifth IMACS International Symposium on Computer Methods for Partial Differential Equations, Lehigh University, Bethlehem, Pennsylvania, 80-83, June 1984

7. 'Convective Heat Transfer from a Rotating Isothermal Sphere', 20th Society of Engineering Science Meeting, University of Delaware, Abstracts Proceedings, 229-230, August 1983

6. 'Natural Convection Heat Transfer from an Isothermal Sphere', Proceedings, 16th Southeastern Thermal Sciences Conferences, Miami, Florida, Hemisphere, Vol. 1, 347-364, April 1982

5. 'Laminar and Turbulent Natural Convection Heat Transfer from Horizontal Cylinders', Ph. D. dissertation, University of Delaware, Newark, August 1981

4. 'Trombe-Michel Wall Using Phase Change Materials', with S.I. Guceri, Proceedings, 2nd Int. Conf. on Alternate Energy Sources, Vol. 2, Hemisphere Publishing Corp., New York, N.Y., 493-502, December 1979

3. 'Temperature Regulation of Residential Air Spaces Using Phase Change Materials', Master's thesis, University of Delaware, Newark, Delaware, 1978

2. 'Temperature Regulation of Residential Air Spaces Using Phase Change Materials', with S.I. Guceri, Proceedings, Solar Energy and Conservation Workshop, Vol. 1, Pergamon Press, Elmsford, New York, 367-392, December 1978

1. 'The Free Shear Layer Edgetone Phenomena', Eighth Southwestern Graduate Research Conference in Applied Mechanics, Proceedings, The University of Texas in Austin, D6, April 1977

ACADEMIC ACTIVITIES

Undergraduate Courses Taught and Developed* (at Drexel University)

Introduction to Mechanical Engineering	E600
Basic Thermodynamics	MEM 210
Basic Fluid Mechanics	MEM220
Thermal and Fluid Sciences Lab.	E622, MEM 303, MEM 311
Thermodynamic Analysis I	MEM410
Heat Transfer I	MEM340
Fluid Dynamics I	MEM 320
*Thermal Systems Design	MEM 440
#Energy I and II	EEP 290 and EEP 291
#Freshman Design	ENGR-AS 132

(new Drexel engineering curriculum courses, tDEC program)

Graduate Courses Taught and Developed* (at Drexel University)

Foundations of Fluid Mechanics	MEM621
Boundary Layer Theory	MEM622
Conduction Heat Transfer	MEM611
Convection Heat Transfer	MEM612
Radiation Heat Transfer	MEM613
*Computational Fluid Mechanics & Heat Transfer I	MEM711
*Computational Fluid Mechanics & Heat Transfer II	MEM712

*Two-Phase Flow and Heat Transfer	MEM714
*Heat Transfer in Manufacturing	MEM717
Statistical Thermodynamics I	MEM601
Statistical Thermodynamics II	MEM602
Physical Gas Dynamics	MEM701
Hydrodynamic Stability	MEM680
Thermo-Fluid Seminar Series	G680

UNDERGRADUATE STUDENT ACTIVITIES

AIAA Student Chapter Faculty Advisor, 2001-2003
Pi Tau Sigma, ME Honor Society, Faculty Advisor, 1997 – 1999
Senior Design Faculty, 1984 - Present
(Have supervised two senior design groups/year)
ASME Student Chapter Faculty Advisor, 1982-1985

GRADUATE and POST-DOCTORAL RESEARCH SUPERVISION

a) POST-DOCTORAL

5. Dr. J. W. Yi	'Microfabrication by DC Microplasma Discharge', October 2002-July 2003
4. Dr. Yool-Kwon Oh	'Multi-Phase Flow in Bubble Columns', September 1996 – May 1997
3. Dr. H. Turkoglu	'Numerical Simulation of a Direct-Contact Condenser for Metal Recovery', January-June, 1991, July-September 1995
2. Dr. L. Yang	'Modeling of Granular Flow in Rotary Kilns', April 1994 - April 1996
1. Dr. T. Fusegi	'Thermo-Acoustic Convection', August-September 1994

b) DOCTORAL STUDENTS

26. N. Hasan	'Transport in Supercritical Fluids', in progress
25. E. Sayer	'Transport in Microchannels: Effects of Acoustic Excitations', in progress
24. D. Antao	'Thermoacoustic Refrigeration', in progress
23. D-H Lee	'A Novel Microchip Capillary Electrophoresis for Single Cell Proteomics', (Co-adviser) June 2011
22. M. N. Uddin	Molecular Dynamics Simulations of Dispersion of Single Walled Carbon Nanotubes in Aqueous Solution', (Co-adviser) June 2010
21. S. Hoque	'Aerosol Transport and Decontamination in Building Envelopes' (Co-adviser) June 2010
19. Z. Lei	'Piston-effect in Near Super-critical fluids', September 2009
20. T. I. Farouk	'Simulation of Atmospheric Pressure Microdischarges' (Co-adviser) March 2009
18. D. A. Staack	'Atmospheric Pressure Microdischarges for Microfabrication', (Co-adviser) December 2008
17. Y. Lin	'Thermoacoustic Waves in Gases', June 2006
16. T. Bartrand	'Water Disinfection in Ozone Reactors', June 2006 (Co-adviser)
15. M. Aktas	'Acoustic Streaming in Enclosures', June 2004

14. F. Yan ‘Microchannel Flows of Gases and Liquids’, June 2003
13. D. J. Greene ‘Modeling Approaches for Disinfection in Chlorine Reactors’, June 2002, (Co-adviser)
12. K. Bera ‘Particle-in-cell/Monte Carlo Simulation of Glow Discharge’, September 1999
11. D. Mitra-Mazumdar ‘Mass Transfer in a Multi-phase Flow Reactor’, August, 1997, (Co-adviser)
10. K. Nagayama ‘Plasma Assisted Chemical Vapor Deposition of DLC Films’, August 1996
9. F. Qian ‘Modeling of Transport Processes in an Electric Arc Furnace ‘, December 1995 (Co-adviser)
8. P. J. Lucas ‘Laminar Flow in a Coiled Helical Tube ‘, August 1992 (Co-adviser)
7. L. Yang ‘Transport Processes in a Rotating CVD Reactor’, August 1992
6. J. Lai ‘Modeling of Subcooled Flow Boiling in a Vertical Tube’, August 1992
5. H. Turkoglu ‘Analysis of Gas Injection in Molten Metal’, December 1990
4. Y. G. Kim ‘Analysis of Twin Belt Strip Casting’, November 1988, (Co-adviser)
3. T. Fusegi ‘Fire Prediction in Compartments’, October 1988
2. K. S. Ball ‘Mixed Convection Heat Transfer in Rotating Systems’, June 1987
1. D. Wei ‘Modeling of Thermal Plasmas for Metal Deposition’, December 1986, (Co-adviser)

c) **MASTER'S STUDENTS**

23. U. Prasopchingchana ‘Mass Transfer and Separation in Supercritical Carbon Dioxide’, June 2009
22. M. N. Uddin ‘Prediction of Polymer Jets’, (Co-adviser) March 2006
21. S. Soni ‘Modeling Building Decontamination’, (Co-adviser) August 2005
20. K.R. Cheruparambil ‘Thermal conductivity Measurement of Thin Diamond Films’, June 2000
19. K. Chandratre ‘Coal Devolatilzation and Combustion in Furnaces’, December 1997
18. A. Wenger ‘Modeling of Waste Remediation in a Plasma Furnace’, June 1996
17. C. Mesyngier ‘Non-Gray Gas Radiation Modeling’, April, 1996
16. V. Sharma ‘Modeling of Multidimensional Convective Flow Boiling in Ducts’, August 1993
15. J. Appukuty ‘Modeling of Radiative Heat Transfer in an Industrial Furnace’, June 1992
14. R. J. Giammaruti ‘Heat Transfer Measurements in a Model CVD Reactor’, January 1992
13. R. Banton ‘Numerical Simulation of Supersonic Shear Layers’, June 1991
12. X. X. Cai ‘Turbulent Flow Predictions in a Square Duct with a Splitter Plate’, March 1989
11. V. C. Dixit ‘Heat Transfer in Rotating Annulus’, June 1988
10. W. Lau ‘Spray Evaporation Studies in a Shear Layer’, June 1987
9. S. Marakovits ‘Characteristic Time Model Validation’, September 1987, (Co-adviser)

8. K. Tallio — 'Characteristic Time Model Validation', December, 1987, (Co-adviser)
7. S. Sariaman — 'Turbulent Flow Predictions in a Shear Layer', January 1986
6. T. Fusegi — 'Vorticity-Velocity Formulation of the Incompressible Navier-Stokes Equations', March 1985
5. Y. G. Kim — 'Thermal Analysis of Thin Strip Casting of Low Carbon Steel', January 1985 (Co-adviser)
4. H. Shayer — 'Body Fitted Coordinate Systems in Predicting Mixed Convection Flows', June 1984
3. K. S. Ball — 'Numerical Predictions of Hydrocarbon Combustion', June 1984
2. F. Karim — 'Natural Convection Flows in Partial Enclosures', June 1984 (Co-adviser)
1. G. N. Facas — 'Natural Convection Flows in Saturated and Unsaturated Porous Media', June 1983

REVIEWERSHIPS

ASME Journal of Heat Transfer - **Associate Editor**, 2003-2006
AIME Metallurgical and Materials Transactions B - **Key Reader**, 1992 – 2001
ABET Mechanical Engineering **Program Evaluator** *(elected by ASME Board on Engineering Education, 2002)*
Served as an ABET reviewer for the following Mechanical Engineering programs:

2011-12	*Northwestern University, Evanston, Illinois*
2010-11	*University of Santa Clara, Santa Clara, California*
2009-10	*Beirut American University, Beirut, Lebanon*
2008-09	*Texas A&M University, Doha, Qatar*
2007-08	*University of North Florida, Jacksonville, Florida*
2005-06	*University of South Alabama, Mobile, Alabama*
2004-05	*University of Michigan, Dearborn Michigan*
2003-04	*Arizona State University, Tempe, Arizona*
2002-03	*Bradley University, Peoria, Illinois*

Regularly reviews papers for the ASME Journal of Heat Transfer; International Journal of Heat and Mass Transfer; Journal of Applied Physics; Applied Mechanics Reviews (Technical papers and books), AIAA Journal; Numerical Heat Transfer; AIAA Journal of Thermophysics and Heat Transfer.

National Science Foundation (Regular and SBIR Proposals and Panelist), DOE Basic Energy Sciences (Proposals), DOE University Coal Research (Proposals), National Institute of Standards and Technology (Proposals), Advanced Technology Center of Southeastern Pennsylvania (Proposals), Dutch Technology Foundation, (Proposals), CRCD-FSU program (Proposals)

Jadavpur University, India (Ph.D. Thesis External Examiner), McGill University, Canada (Ph.D. Thesis External Examiner); Swarthmore College, Pa., Honors Examiner

CONTINUING EDUCATION

- 'Workshop - Sustainability across the Curriculum', Drexel University, June 2010

- National Science Foundation Workshop (*as an **invited participant***) on 'Frontiers in Transport Phenomena Research and Education: Energy Systems, Biological Systems, Security, Information Technology, and Nanotechnology', the University of Connecticut, Storrs, Connecticut, May 17-19, 2007
- 'Gordon Research Conference on Plasma Processing', Mount Holyoke College, Massachusetts, August 2006, August 2009
- 'Gordon Research Conference on Plasma Processing', Holderness School, New Hampshire, August 2004
- 'NASA 7th Annual Microgravity Environment Interpretation Tutorial (MEIT)', NASA-Glenn Center, Cleveland, Ohio, March 2-4, 2004
- 'Engineering Education: A Catalyst Workshop for Change', Bucknell University and the National Science Foundation, July 3 -10, 2003
- 'Workshop on Fuel Cell Technology for Advanced Vehicles', Rochester Institute of Technology, Rochester, New York, April 2002
- 'ASME Microfluidics for Lab-on-a-chip Technology Seminar', Arlington, Virginia, September 2001
- 'Effective Teaching: A Workshop', Rowan College, New Jersey, May 2000
- 'International Symposium on Plasma and Flow Simulation for Materials Processing', Tohoku University, Sendai, Japan, July 1997
- 'Gordon Research Conference on Plasma Processing', New Hampton School, New Hampshire, August 1996
- Workshop on 'Concurrent Engineering and Design for Manufacturing', University of Massachusetts, Lowell, June 1996
- Workshop on 'Industrial Applications of Plasma Chemistry', University of Minneapolis, Minnesota, August 1995
- Short course on 'Using PCGC-3', Brigham Young University, Provo, Utah, March 1992
- AIAA course, 'Using Euler Solvers', Snowmass, Colorado, June 1984
- Associate Program Director, 'Numerical Computations of Fluid Flow and Heat Transfer', Drexel University Office of Continuing Professional Education, February -April, 1984
- 'American Society of Engineering Education Annual Meeting' as a New Engineering Educator (Drexel representative), Rochester Institute of Technology, Rochester, New York, June 1983
- 'Seminar on Combustion' (post college professional education), Carnegie-Mellon University, Pittsburgh, Pennsylvania, May 1983

PROFESSIONAL SOCIETY ACTIVITIES

- Member, Sigma Xi –the Scientific Research Society, Drexel Chapter, 1999 - present
- Member, AIAA Philadelphia Section 2007 - 09
- Member, (US) Organizing Committee, 13th International Heat Transfer Conference, Sydney, Australia, August 2006
- Member, Organizing Committee, 7th ASME-ISHMT Conference, Gauhati, January 2006
- Session Chair, 'Computational Methods in Thermoacoustic and Acoustic Problems', ICEME, San Francisco, California, November 2005
- Co-organizer, 2nd BSME-ASME Conference on Thermal Engineering, Dhaka, Bangladesh, December 2003
- Session Chair, 'High Performance Computing in Thermal Problems', ICEME, New Orleans, Louisiana, November 2002

- Co-organizer, BSME-ASME Conference on Thermal Engineering, Dhaka, Bangladesh, December 2001
- Member, Organizing Committee, 5th ASME-ISHMT Conference, Calcutta, January 2002
- President, Sigma Xi - The Scientific Research Society, Drexel University Chapter, June 1996 - June 1997
- Co-organizer, Technical Symposium titled, 'Thermal Treatment of Wastes', International Mechanical Engineering Congress, Atlanta, Georgia, November, 1996
- Co-organizer, Technical Symposium titled, 'Two-phase Heat Transfer', First ISHMT-ASME Heat and Mass Transfer Conference, Bombay, India, January 5-7. 1994
- Co-organizer, Technical Symposium titled, 'Symposium on Fire and Combustion Systems', National Heat Transfer Conference, Atlanta, Georgia, August 1993
- Co-organizer, Technical session titled, 'Combustion Fundamentals', ASME /AIAA Thermophysics Conference, Seattle, Washington, June 1990
- Co-organizer, Technical session titled, 'Modeling of Combustion Systems', National Heat Transfer Conference, Philadelphia, Pennsylvania, August, 1989
- Chairman, Local Organizing Committee, National Heat Transfer Conference, Philadelphia, Pennsylvania, August, 1989
- Chairman, Heat Transfer Division, ASME Philadelphia Section, 1988-1990
- Co-organizer, Technical session titled, 'Modeling of Reacting Flows', ASME Winter Annual Meeting, Boston, Massachusetts, November 1987
- Co-organizer, Technical session titled, 'Heat and Mass Transfer in Compartment Fires' 2nd ASME-JSME Joint Thermal Engineering Conference March 1987, Honolulu, Hawaii

CONSULTING ACTIVITIES

- Farrow Holdings Group, Philadelphia, PA 2011
- Environmental Techtonics Corporation, Southampton, PA 2010
- Dominion Electric Power Company, Norfolk, VA. 2009 -10
- Law firm of Thomas Holland, Philadelphia, PA, 2009 - 10
- Siemens Water Technologies (Wallace and Tiemann Products), Vineland, NJ 2009 – 10
- Siemens Water Technologies (Chemical Feed and Disinfectants), Vineland, NJ 2009 -10
- Gaston, Inc., Cinnaminson, NJ 2008
- Onyx Valve Company, Pennsauken, New Jersey, July – August 2005
- Industrial Compressors and Equipment Corp., Primos, PA, February 2004
- Solo Cup Company, Federalsburg, MD, June 2003 – August 2003
- Vacuum Furnace Systems, Souderton, PA., Nov. 2001 – February 2002
- Dade-Behring Inc., Newark, De. January –March, 2000
- Therm-L-Matic Corporation, Hatboro, Pa. September- January, 1999
- UV Technologies, Downingtown, Pa. May-June, 1997
- Academy of Natural Sciences, Philadelphia, PA. April - June 1995
- Mattioni, Mattioni and Mattioni, Counselors at Law, Philadelphia, Pa. December 1994
- Computational Fluid Dynamics Software, Pittsburgh, Pennsylvania, April 1993
- Camden County Vocational School, Camden, New Jersey, June 1991
- International Mill Service, Inc. Philadelphia, Pennsylvania, October 1990 - March 1991
- Air Products and Chemicals, Inc., Allentown, Pennsylvania, April - July 1990
- Hydrodent Laboratories, Woodbridge, New Jersey, June - July, 1989
- Air Products and Chemicals, Inc., Allentown, Pennsylvania, January - March 1989
- Hale Fire Pump Company, Conshohocken, Pennsylvania , November 1987 - January 1988

- UNISYS Corporation, Detroit, Michigan, June - August, 1987
- Department of Periodontics, School of Dental Medicine, University of Pennsylvania, December 1986 - January 1987
- U. S. Naval Base, Philadelphia, Pennsylvania, September, 1985
- ARCO Chemical Company, Newtown Square, Pennsylvania, July-September, 1983

COMMITTEE ACTIVITIES AND SERVICES

24. Member, MEM 'Sustainability in Curricula' Committee, 2010-11
24. Chair, MEM Publicity and Fund Raising Committee, 2009-10
23. Chair, MEM Tenure and Promotion Committee, 2007-08
22. Member, MEM ABET Evaluation Committee, September 2006 – 2008
21. Member, MEM Tenure and Promotion Committee, 2004-05
20. Chair, MEM Undergraduate Laboratory Committee, 2004-05
19. Member, MEM Curriculum Revision Committee, 2003-04
18. Member, MEM Department Promotion and Tenure Committee, 2002-03
17. Member, CoE ABET Evaluation Committee, September 2000 – 2002
16. Member, CoE Assessment Committee, September 2000 - present
15. Chair, MEM Department Head Search Committee, May 1998 - December 1998
14. Member, College of Engineering Promotion and tenure Committee, October 1997 - present
13. Chair. Promotion and Tenure Committee, MEM Department, October 1996 - 97
12. Member, Computer and Networking Committee, College of Engineering, Drexel University, October 1995 - June 1997
11. Member, Undergraduate Curriculum Committee, MEM Department, Drexel University, October 1995 - present
10. Member, Drexel Curriculum Committee, June 1994 - June 1995
9. Member, Undergraduate Curriculum Committee, MEM Department, Drexel University, October 1992 - 1996
8. Member, Advisory Committee, MEM Department, Drexel University, October 1992 – 1996
7. Member, College of Engineering Graduate Programs and Research Committee, October 1990 - May 1991
6. Member, Long Range Curriculum Study Committee, September, 1987 - May 1988 (Participated in the preparation of the proposal titled, ‘An Enhanced Educational Experience in Engineering’, funded by NSF)
5. Member, Search Committee for Mechanical Engineering Department Head, Drexel University, February 1985 - 86
4. Graduate Advisor, Department of Mechanical Engineering and Mechanics, Drexel University, 1988 - 1991
3. Chairman, Graduate Committee, Department of Mechanical Engineering and Mechanics, Drexel University, 1988 - present
2. Chairman, Undergraduate Curriculum Committee, Department of Mechanical Engineering and Mechanics, 1985-1986
1. Chairman, Department of Mechanical Engineering and Mechanics Computer Committee, Drexel University, 1983-1984

TECHNICAL PRESENTATIONS

103. Space Cryogenics Conference, Coeur D'Alene, Idaho, June 2011, 'Cryocoolers for Space Applications'

102. 13th Asian Congress on Fluid Mechanics, Dhaka, Bangladesh, December 2010, **Keynote lecture**, 'Cryogenic Refrigeration: Recent Advances'

102. ESI-CFD Conference, Santa Ana, California September 2010 **Invited Speaker**, 'CFD Simulations of Thermoacoustic Refrigeration Processes'

101. 13th Asian Fluid Mechanics Conference, Dhaka, Bangladesh, December 2010, 'Cryogenic Refrigeration'

100. National Cheng Kung University, Tainan Taipei, December 2009, 'Atmospheric Pressure Microplasma Discharges'

99. Department of Mechanical Engineering, University of Hawaii, Manoa, Hawaii, June 2009 'Atmospheric Pressure Plasma Deposition Process'

98. National Heat Transfer Conference, July 2007, Vancouver, Canada, 'Thermoacoustic waves in gases and liquids'

97. ASME IMECE, Orlando, FL, November 2005, 'Simulation of Anthrax Spore Transport and Inactivation in a Room: Scaling Analysis'

96. ASME IMECE, Anaheim, CA, November 2004, 'Thermoacoustic Wave Generation and Propagation in Supercritical Carbon Dioxide'

95. 2nd International Workshop on Microplasmas, Hoboken, New Jersey, October, 2004, 'Atmospheric Pressure Microplasma: A Characterization Study

94. ICME 2003, Dhaka, Bangladesh, December 2003, **Keynote lecture**, 'Acoustically Excited and Thermoacoustically Induced Flows'

93. APS/Division of Fluid Dynamics Conference, East Rutherford, New Jersey, November 2003, 'Numerical Simulation of Thermoacoustic Wave Generation and Propagation in Water'

92. ASME IMECE, Washington, DC, November 2003, 'Convective Heat Transfer in a Differentially Heated Enclosure Due to Acoustic Excitations'

91. National Heat Transfer Conference, July 2003, Las Vegas, Nevada, 'Atmospheric Pressure Microplasma Discharge Simulation'

90. Laboratory for Computational Fluid Dynamics, Naval Research Laboratory, April 2003, 'Numerical Simulation of Acoustically Induced Flows: Recent Advances'

89. Department of Mechanical Engineering, Villanova University, April 2003, 'Numerical Simulation of Acoustically Induced Flows: Recent Advances'

88. ASME IMECE, New Orleans, Louisiana, November 2002 , 'Three Dimensional Direct Simulation Monte Carlo Calculations of Non-Continuum Gas Flows'

87. 5th ISHMT-ASME Heat and Mass Transfer Conference, Kolkata, India, January 2002, **Keynote lecture**, 'Computation of High Knudsen number Flows'

86. ICME 2001, Dhaka, Bangladesh, December 2001, **Keynote lecture**, 'Interaction of Thermoacoustic Waves and Buoyancy-induced Flows in an Enclosure'

85. BSME-ASME Thermal Engineering Conference, Dhaka, Bangladesh, December 2001, **Keynote lecture**, 'Non-Continuum Transport Processes in Microscale and Vacuum Systems'

84. 12th International Conf. on Automatic Fire Detection, NIST, Gaithersburg, MD., March 2001, 'Simulation of Smoke Transport in a Standard Test Fire'

83. Department of Mechanical Engineering, Johns Hopkins University, October 2000, 'Numerical Simulation of Fire Induced Flows: Recent Advances'

82. Korea Advanced Institute of Science and Technology, Daejon, South Korea, September 2000, 'Numerical Simulation of Fire Induced Flows: Recent Advances'

81. 22nd Rarefied Gas Dynamics Conference, Sydney, Australia, July 2000, 'Computations of Mixing of Two Parallel Gas Streams in Microchannels using Direct Simulation Monte Carlo Method'

80. 22nd Rarefied Gas Dynamics Conference, Sydney, Australia, July 2000, 'Particle Simulation of CH_4/H_2 RF Glow Discharges for DLC Film Deposition'

79. Department of Mechanical Engineering, University of Maryland Baltimore County, March 2000, 'Numerical Simulation of Fire Induced Flows: Recent Advances'

78. International Conference on Heat and Mss Transfer under Plasma Conditions, Antalya, Turkey, April 1999, **Keynote Speaker,** 'Particle and Fluid Models of Plasma Reactors'

77. Department of Mechanical Engineering, Lehigh University, March 1999,' Modeling Glow Discharges for Materials Processing'

76. APS/Division of Fluid Dynamics Conference, Philadelphia, PA, November 1998, 'Acoustically Generated Flow and Temperature Fields in a Rectangular Cavity'

75. Department of Mechanical Engineering, Chosun University, Kwangju, Korea, August 1998, 'Modeling Multi-phase Flows'

74. IEEE International Conference on Plasma Physics, Raleigh, North Carolina, June 1998, 'Experimental and Computational Studies of Methane Glow Discharge'

73. Department of Mechanical Engineering, State University of New York, Stony Brook, February 1998, 'Plasma and Fluid Flow Simulation for Materials Processing'

72. Department of Chemical Engineering, Drexel University, Philadelphia, Pennsylvania, November 1997, 'Monte Carlo Methods in Fluid Mechanics and Heat Transfer'

71. Japan Society of Mechanical Engineers, Annual Meeting, Tokyo, July, 1997, 'Two-dimensional Modeling of Methane Plasma Discharge'

70. Department of Mechanical Engineering, Temple University, Philadelphia, Pennsylvania April 1997, 'Plasma Discharges in Materials Processing'

69. Department of Mechanical Engineering, Washington State University, Pullman, Washington, April 1997, 'Plasma Discharges in Materials Processing'

68. CFX Users' Meeting, Valley Forge, Pennsylvania, October 1996, 'Modeling Multi-Phase Flows'

67. National Heat Transfer Conference, Houston, Texas, August 1996, 'Modeling a Direct-Contact Condenser for Metal Recovery'

66. IEEE International Conference on Plasma Physics, Boston, Massachusetts, June 1996, 'Simulation of Methane Plasma'

65. National Heat Transfer Conference, Portland, Oregon, August 1995, 'Numerical Study of Heat Transfer from a Liquid Pool due to an Impinging Gas Jet'

64. National Heat Transfer Conference, Portland, Oregon, August 1995, 'Modeling of Granular Flow and Heat Transfer of Contaminated Soil within a Rotary Calciner'

63. Center for Metallurgical Process Engineering, University of British Columbia, August 1995, 'Gas Impingement on Liquid Baths'

62. Diamonex Incorporated, Allentown, Pennsylvania, June 1995, 'Plasma Discharges in Materials Processing'

61. Department of Mechanical Engineering, Tufts University, Medford, Massachusetts, April 1995, 'Plasma Discharges in Materials Processing'

60. Department of Mechanical Engineering, Texas A&M University, College Station, April, 1995, 'Direct Monte Carlo Simulation of Plasma Discharges'

59. Department of Mechanical Engineering, University of Texas at Austin, **Byron Short Lecture**, April, 1995, 'Direct Monte Carlo Simulation of Plasma Discharges'

58. Department of Mechanical and Aerospace Engineering, Rutgers University, December 1993, 'Modeling Combustion in Industrial Furnaces'

57. National Heat Transfer Conference, Atlanta, Georgia, August 1993, 'Effects of Nitrogen Removal in an Industrial Furnace - A Three Dimensional Study'

56. 2nd Int. Conference on Combustion Technologies for Clean Environment, Lisbon, Portugal, July 1993, 'A Numerical and Experimental Study of the Turbulent Combustion of Natural Gas with Air and Oxygen in an Industrial Furnace'

55. Department of Mechanical Engineering, Florida International University, April 1993, 'Transport Processes in CVD reactors'

54. Department of Mechanical Engineering, Lehigh University, November 1992,' Modeling Combustion in Industrial Furnaces'

53. ASME Winter Annual Meeting, Anaheim November 1992, 'Three Dimensional Taylor-Couette Flow in a Vertical Annulus with a Rotating Hexagonal Inner Cylinder'

52. ASME Winter Annual Meeting, Anaheim, November 1992, 'Modeling Oxygen – Natural Gas Combustion in Industrial Furnaces'

51. Pittsburgh Energy Technology Center, Pittsburgh, October 1992, 'Modeling Multiphase Reacting and Nonreacting Flows '

50. National Heat Transfer Conference, San Diego, California, August 1992, 'Predictions of Silicon Deposition in a Barrel Type CVD Reactor under Microgravity Conditions.'

49. Department of Mechanical Engineering, University of Pennsylvania, November 1991,'Mixed Convection in Rotating Systems.'

48. National Heat Transfer Conference, Minneapolis, Minnesota, July 1991, 'Mixed Convection Heat Transfer in a Vertical Rotating Annulus with Side-Port Injection.'

47. Naval Research Laboratory (Laboratory for Computational Fluid Dynamics), Washington, April 1991, 'Radiation Modeling in Reacting and Non-Reacting Flows.'

46. TMS Annual Meeting (Materials Processing Committee), New Orleans, Louisiana, February 1991, 'Three Dimensional Predictions of Silicon Deposition in a Barrel Reactor.'

45. American Physical Society (Fluid Dynamics Division) Meeting, Ithaca, New York, November, 1990, 'Convective Heat Transfer in a Rotating Annulus with a Square Cylinder.'

44. Department of Mechanical Engineering, Villanova University, October 1990,' Transport Processes in CVD reactors.'

43. Air Products and Chemicals, Inc., Allentown, Pennsylvania, July 1990, 'Industrial Applications of Computational Fluid Dynamics.'

42. Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology, Seoul, Korea, June 1990, 'Combustion Processes in Glass Melting Furnaces.'

41. Department of Mechanical Engineering, Kyoto University, Kyoto, Japan, June 1990, 'Numerical and Experimental Investigation of the Transport Processes in Gas Injected Liquid Baths.'

40. Institute of Fluid Sciences, Tohoku University, Sendai, Japan, June 1990, 'Transport processes in Barrel Type CVD Rectors.'

39. Department of Aerospace Engineering, Tokyo Institute of Technology, Tokyo, Japan, June 1990, 'Large Eddy Simulation of a Supersonic Shear Layer.'

38. 73rd Steelmaking Conference, Detroit, March 90, ‘Effects of Vessel Aspect Ratio on the Mixing Rate in a Cylindrical Steel Bath with Vertical Argon Injection.’

37. ASME Winter Annual Meeting, San Francisco, December 1989, ‘Effects of Process Parameters on the Deposition Rates in a Vertical CVD Reactor.’

36. National Heat Transfer Conference, Philadelphia, Pennsylvania, August 1989, ‘Heat Transfer in a Vertical Annulus with a Square Inner Cylinder.’

35. National Heat Transfer Conference, Philadelphia, Pennsylvania, August 1989, Panel Session on Sensors in the Process and Power Industries, ‘High Heat Flux Measurements.’

34. 72nd Steelmaking Conference Proceedings, Chicago, Illinois, April 1989, ‘Numerical Computations of Fluid Flow and Heat Transfer in a Gas Injected Molten Iron Bath.’

33. West Catholic Girls' High School, Philadelphia, Pennsylvania, February 1989 ‘Lasers in Mechanical Engineering.’

32. Department of Mechanical Engineering and Mechanics, Drexel University, January 1989, ‘Large Eddy Simulation of a Supersonic Shear Layer.’

31. ASME Winter Annual Meeting, Chicago, Illinois, December 1988, ‘Modeling of a Twin-belt Strip Casting Process.’

30. American Physical Society (Fluid Dynamics Division) Meeting, November 1988, ‘Numerical Simulation of Supersonic Mixing Layers.’

29. Air Products and Chemicals, Inc., Allentown, Pennsylvania, May 1988, ‘Gas Injection in Molten Metal Baths.’

29. Air Products and Chemicals, Inc., Allentown, Pennsylvania, May 1988, ‘Gas Injection in Molten Metal Baths.’

28. 4th Conference on Modeling of Casting and Welding Processes, Palm Coast, Florida, April 1988, ‘Modeling of a Twin-belt Strip Casting Process.’

27. ASME Winter Annual Meeting, Boston, Massachusetts, December 1987, ‘Thermal Plasma Deposition of Metal Particles.’

26. Department of Mechanical Engineering, University of Miami, Coral Gables, Florida, December 1987,’ Thermal Plasma Deposition.’

25. Army Research Office Engines and Fuels Workshop, Wayne State University, Detroit, Michigan, October 1987,’Computations of Evaporating Sprays in a Shear Layer.’

24. Department of Mechanical Engineering, University of Delaware, Newark, April 1987, ‘Heat Transfer in Rotating Systems.’

23. Materials Research Society Symposium, Anaheim, California, April 1987, ‘A Critical Analysis of Proposed Plasma Jet Models to Predict Temperature and Velocity Profiles.’

22. 2nd ASME-JSME Thermal Engineering Joint Conference, Honolulu, Hawaii, March 1987, 'Spray Evaporation Studies in a Prevaporizing-Premixing Fuel Air Passage.'

21. ASME Winter Annual Meeting, Anaheim, California, December 1986, 'Melting Powder Particles in a Low Pressure Plasma Jet.'

20. ASME Winter Annual Meeting, Anaheim, California, December 1986, 'Thermal Analysis of Thin Strip Casting of Low Carbon Steel.'

19. Army Research Office Engines and Fuels Workshop, University of California, Davis, March 1986, 'Characteristic Time Model Validation.'

18. International Electronics Packaging Conference, Orlando, Florida, October 1985, 'Natural Convection Cooling of Heated Cylinders in Narrow Enclosures.'

17. ASME/ AIChE National Heat Transfer Conference, Denver, Colorado, August 1985, 'An Evaluation of the Vorticity-Velocity Formulation of the Navier-Stokes Equation in Predicting Heat Transfer Problems.'

16. AIAA 18th Fluid Dynamics, Plasma Dynamics and Lasers Conference, Cincinnati, Ohio, July 1985, 'Effects of Coil Location and Injection Flow Rate in an Inductively Coupled RF plasma Torch.'

15. International Symposium on Plasma Chemistry, Eindhoven, The Netherlands, July 1985, 'A Comparison of Particle Melting and Particle/Plasma Interaction in RF and DC Plasma.'

14. Department of Mechanical Engineering, Bangladesh University of Engineering and Technology, December 1984, 'Thermal-Fluid Research at Drexel University.'

13. Department of Chemical Engineering, Drexel University, November 1984, 'Buoyancy Induced Flows and Heat Transfer.'

12. ASME/AIChE National Heat Transfer Conference, Niagara Falls, New York, August 1984, 'Turbulent Thermal Convection in a Confined Heat Generating Fluid Layer.'

11. 20th Society of Engineering Sciences Meeting, University of Delaware, August 1983, 'Convection Heat Transfer from a Rotating Isothermal Sphere.'

10. 18th Intersociety Energy Conversion Engineering Conference, Orlando, Florida, August 1983, 'Thermal Performance of Insulated Wall Systems with Metal Studs.'

9. ASME Winter Annual Meeting, Phoenix, Arizona, November 1982, 'Transient and Steady State Natural Convection in a Porous Medium between Two Concentric Cylinders.'

8. Department of Mechanical Engineering, Bangladesh University of Engineering and Technology, August 1982, 'Turbulent Flow Predictions.'

7. 16th Southeastern Thermal Science Conference, Miami, Florida, December 1981, 'Natural Convection Heat Transfer from an Isothermal Sphere.'

6. ASME/AIChE National Heat Transfer Conference, Milwaukee, Wisconsin, August 1981, ‘Laminar and Turbulent Natural Convection in Annulus between Two Concentric Cylinders.’

5. Department of Mechanical Engineering and Mechanics, Drexel University, Philadelphia, Pennsylvania, March, 1981, ‘Laminar and Turbulent Natural Convection from Horizontal Cylinders.’

4. Department of Mechanical Engineering, Michigan Technological University, Houghton, Michigan, March 1981, ‘Laminar and Turbulent Natural Convection from Horizontal Cylinders.’

3. Department of Mechanical Engineering, Villanova University, Villanova, Pennsylvania, December 1980, ‘Prediction of Natural Convection Flows.’

2. 2nd International Conference on Alternate Energy Sources, Miami Beach, Florida, December 1979, ‘Trombe Michel Wall Using Phase Change Materials.’

1. Southwestern Graduate Research Conference on Applied Mechanics, University of Texas at Austin, April 1977, ‘The Free Shear Layer Edgetone Phenomena.’