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Mechanical and Aerospace Engineering Dept.
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EDUCATION

General Background: heat transfer, fluid mechanics, thermodynamics, electromagnetic theory, applied mathematics, combustion

Ph.D. Mechanical Engineering: University of California, Berkeley, June 1974.
Dissertation: "Infrared Radiation Heat Transfer from Luminous Flames," a theoretical study.

M.S. Mechanical Engineering: University of California, Berkeley, December 1972.
Thesis: "Calculation of the Emissivity of Luminous Flames," a theoretical study.

B.S. Mechanical Engineering: University of Michigan, May 1971.

PROFESSIONAL POSITIONS HELD:

Professor of Mechanical Engineering: State University of New York at Buffalo, Amherst, NY. August 1986-present.

Associate Professor of Mechanical Engineering: State University of New York at Buffalo, Amherst, NY. August 1981-August 1986.

Assistant Professor of Mechanical Engineering: State University of New York at Buffalo, Amherst, NY. August 1977-August 1981.

Assistant Professor of Mechanical Engineering: Massachusetts Institute of Technology, Cambridge, MA. July 1974-August 1977.

National Science Foundation Graduate Fellow: October 1971-June 1974. Supported graduate studies.

Engineering summer employment: General Motors Proving Grounds, Milford, MI (May 1971-July 1971); Fruehauf Trailer Corporation, Detroit, MI (May 1968-August 1968; February 1967- August 1967).

HONORS

- Graduate: National Science Foundation Graduate Fellow (1971 – 1974)
- Undergraduate: Summa Cum Laude (GPA = 4.0)
 Outstanding Senior Engineer (Tau Beta Pi Award)
 James B. Angell Scholarship Award
 Wm. J. Branstrom Freshman Award
 Evans Scholar (Scholar of the Year - 1971)
- Honor Societies: Tau Beta Pi
 Pi Tau Sigma
 Phi Eta sigma
 Sigma Xi
- Professional: "Best Paper - Central States Meeting," The Combustion Institute, 1992
 "Outstanding Reviewer - ASME Journal of Heat Transfer,"
 Heat Transfer Division - ASME, 1993.
 "2nd Place - Physical Sciences", WNY Inventor of the Year (2009),
 Niagara Frontier Intellectual Property Law Association
 "Inventor of the Year" (2010),
 Rochester Intellectual Property Law Association

PROFESSIONAL SOCIETY ACTIVITIES

Member, ASME, AIAA
 ASME, K-6 Committee (Heat Transfer in Energy Systems)
 ASME, K-11 Committee (Heat Transfer in Fire & Combustion Systems), Charter Member
 ASME, Superconductivity Technical Committee, Charter Member
 Technical Advisory Committee, New York State Solid Waste Combustion Institute,

REVIEWING ACTIVITIES

Journal of Colloid and Interface Science
 European Physics Letters
 Materials Letters
 Journal of Micromechanics & Microengineering
 Applied Physics Letters
 Journal of Physics D - Applied Physics
 Journal of Applied Physics
 International Journal of Heat and Mass Transfer
 ASME Journal of Heat Transfer
 National Science Foundation - proposals
 Journal of Physics A - Mathematical & Theoretical
 Measurement Science and Technology
 Journal of Physics - Condensed Matter
 Former Soviet Scientists/US Civilian R&D Foundation – proposals
 Applied Mechanics Reviews – monographs

GRANTS AND CONTRACTS

\$76,448, Physical Sciences, Inc., "Modelling of Pyrolysis and Combustion Processes for Carbon Mat Epoxies with or without inclusions of Nano-Aluminum Particles," April 15, 2011 – August 15, 2011.

\$9,704, SPIR and Filtration & Separation Dynamics, "Vacuum Drying of Filter Cakes in Filter Presses," November 6, 2000- January 19, 2001.

\$17,116, SPIR and Strippit, Inc., "Alternatives to the Present Annealing Process (Phase 2)," September 1, 1996-January 31, 1997.

\$9,347, SPIR and Strippit, Inc., "Alternatives to the Present Annealing Process (Phase 1)," March 15, 1996-May 14, 1996.

\$25,623, SPIR and Globe International, Inc., "Impregnating Fabric Belts with Latex: Drying and Coating," July 13, 1995-February 12, 1996.

\$20,000, GM Automotive Group - Harrison Division, "Simulation of Passenger Compartment Environment," June 1994-July 1995.

\$1,400, Sigma International, "Thermal Performance of an Intravenous Infusion Pump," January 1994-March 1994.

\$108,051, New York State Center for Hazardous Waste Management and Occidental Chemical Corporation, "Combustion Characteristics of Emulsified Hazardous Liquid Wastes", August 1, 1993-August 31, 1995. (N. Ashgriz, co-principal investigator).

\$13,000, Praxair, Inc., "Simulation of a POX-Fired Steam Reformer", Nov 1992-Apr 1993.

\$5,000, Keller Technology Corporation, "Granule Flow", March 1992-June 1992.

\$5,266, Keller Technology Corporation, "Liquid Spray Source Diffusion," May 1991 - March 1992.

\$22,500, Occidental Chemical Corporation, "Combustion Characteristics of Hazardous Liquid Waste," July 1991 - June 1992. (N. Ashgriz, co-investigator).

\$15,000, Occidental Chemical Corporation, "Combustion Characteristics of Hazardous Liquid Waste," March 1990-February 1991. (N. Ashgriz, co-principal investigator).

\$90,283, New York State Center for Hazardous Waste Management and Occidental Chemical Corporation, "Combustion Characteristics of Hazardous Liquid Waste: Part 3 - Transfer of Technology from Lab-Scale to Full-Scale," July 1990-January 1992. (N. Ashgriz, co-investigator).

\$84,985, New York State Center for Hazardous Waste Management and Occidental Chemical Corporation, "Combustion Characteristics of Hazardous Liquid Waste," August 1989-July 1990. (N. Ashgriz, principal investigator).

\$104,698, New York State Energy Research & Development Authority and Bethlehem Steel Corporation, "Simulation of Combustion Processes and Performance Optimization of the Bethlehem Steel (Lackawanna, NY) Reheat Furnace," July 1989-June 1990. (P. Givi and R. Mayne, co-investigators). Awarded, but declined by the investigators.

\$97,570, New York State Science & Technology Foundation and Bethlehem Steel Corporation, "Simulation of Reheat Furnace Transport Processes to Enable Application of Optimal Control Procedures," November 1988-October 1989.

\$79,450, New York State Center for Hazardous Waste Management and Occidental Chemical Corporation, "Combustion Characteristics of Hazardous Liquid Wastes," August 1988-July 1989. (N. Ashgriz, principal investigator).

\$11,711, Bethlehem Steel Corporation, "Simulation of Reheat Furnace Transport Processes to Enable Application of Optimal Control Procedures," July 1988-December 1988.

\$35,360, Bell Aerospace Corporation, "Development and Application of Flow Visualization Techniques for Cooled Structures," January 1988-June 1989. (N. Ashgriz, co-investigator).

\$158,547, National Science Foundation, "Determination of the Refractive Indices of Soot Particles from Light Scattering Measurements in Flames," February 1985-July 1987.

\$18,545, National Science Foundation, "Optical Equipment for Studying the Properties of Combustion Generated Particulates," June 1983-November 1984.

\$102,121, National Science Foundation, "Optical Properties of Soot Particles in Propane and Synthetic Fuel Flames," December 1981-May 1984.

\$1,505, National Science Foundation Travel Award to attend the NATO Advanced Study Institute on Heat Exchangers, Istanbul, Turkey, August 4-15, 1980.

\$72,585, National Science Foundation, "Experimental Determination of the Radiative Properties of Hydrocarbon Soot Particles," April 1979-September 1981.

\$1,180, UB Foundation, "Experimental Investigation of the Optical Properties of Hydrocarbon Soots," January 1978-December 1978.

\$2,780, SUNY Research Foundation, "Theoretical Investigation of Hydrocarbon Soot Radiation," January 1978-December 1979.

\$51,910, Duro-Test Corp., "Transparent Heat Mirror Films for Incandescent Light Bulbs," July 1977-June 1978.

PUBLICATIONS

Refereed Journals

S.J. Kang, V. Vandadi, J.D. Felske, J.D., and H. Masoud, "Alternative Mechanism for Coffee-Ring Deposition Based on Active Role of Free Surface," *Physical Review E*, 94 (6), #063104, 2016.

C. Bathany, D. Beahm, J.D. Felske, F. Sachs, S. Hua, "A high throughput assay of diffusion through Cx43 gap junction channels with a microfluidic chip," *Analytical Chemistry*, 83 (3), 933-939, 2011.

J.N. Armstrong, J.D. Felske, and H.D. Chopra, "Multiple Phase Transitions Found in a Magnetic Heusler Alloy and Thermodynamics of Their Magnetic Internal Energy," *Physical Review B*, 81(17), #174405, 2010.

H. Masoud and J.D. Felske, "Analytical Solution for Stokes Flow Inside an Evaporating Sessile Drop: Spherical and Cylindrical Cap Shapes," *Physics of Fluids*, 21 (4), #042102, 2009.

H. Masoud and J.D. Felske, "Analytical Solution for Inviscid Flow Inside an Evaporating Sessile Drop", *Physical Review E*, 79 (1), #016301, 2009.

T. Pennell, T. Suchyna, J. Wang, J. Heo, J.D. Felske, F. Sachs, S.Z. Hua, "A Microfluidic Chip to Produce Temperature Jumps for Electrophysiology", *Analytical Chemistry*, 80 (7), 2447-2451, 2008.

A.M. Joshi, J.A. Lordi, J.C. Mollendorf, J.D. Felske, and D.I. Blekhman, "Clearance Analysis and Leakage Flow CFD Model of a Two Lobe Multi-Recompression Heater", *International Journal of Rotating Machinery*, 12, # 79084, 2006.

P.E. DesJardin., J.D. Felske, and M.D. Carrara, "A Mechanistic Model for Aluminum Particle Ignition and Combustion in Air", *AIAA Journal of Propulsion and Power*, 21, 478-485, 2005.

J.D. Felske, "Effective Thermal Conductivity of Composite Spheres in a Continuous Medium With Contact Resistance", *International Journal of Heat and Mass Transfer*, 47 (14-16), 3453-3461, 2004.

D.I. Blekhman, J.C. Mollendorf, J.D. Felske, and J.A. Lordi, "Multi-Control-Volume Analysis of the Compression Process in a High-Temperature Root's Type Compressor", *International Journal of Rotating Machinery*, 10, 45-53, 2004.

J.C.Y. Lee, J.D. Felske, and N. Ashgriz, "Flame Propagation Across Gelled Alkane-In-Water Emulsions," *Spill Science & Technology Bulletin*, 8 (4), 391-398, 2003.

J.C. Mollendorf, J.D. Felske, S. Samimy, and D.R. Pendergast, "A Fluid/Solid Model for Predicting Slender Body Deflection in a Moving Fluid", *Journal of Applied Mechanics*, 70 (3), 346-350, 2003.

W.J. Stry, J.D. Felske, and N. Ashgriz, "Droplet Combustion of Chlorinated Benzenes, Alkanes, and their Mixtures in a Dry Atmosphere," *Environmental Engineering Science*, 20 (2), 125-134, 2003.

D.I. Blekhman, J.C. Mollendorf, J.D. Felske, and J.A. Lordi, "Analysis of a High-Pressure-Ratio Roots-Type Compressor Producing a Very High Temperature Outlet Gas Stream", *International Journal of Transport Phenomena*, 4, 275-284, 2002.

H. Wang and J.D. Felske, "Thermomechanical Analysis of Four-Lobe Rotors in a Roots Type Multi-Recompression Heater," *International Journal of Rotating Machinery*, 8, 201-213, 2002.

G.Y. Aleshin, J.C. Mollendorf, and J.D. Felske, "The Temperature Response of a Metallic Rod Near a 'Steam Explosion' ," *International Communications in Heat and Mass Transfer*, Elsevier Science 26, 509-512, 1999.

N. Ashgriz, J.P. Seet, and J.D. Felske, "Flow Behavior in Thin-Gapped, Diamond-Shaped Channels with Pins," *J. Fluids Engrg.* 115, 175-177, 1993.

J.D. Felske and J.C. Ku, "A Technique for Determining the Spectral Refractive Indices, Size and Number Density of Soot Particles from Light Scattering and Spectral Extinction Measurements in Flames," *Combust. Flame*, 91, 1-20, 1992.

W.J. Stry and J.D. Felske, "On Reheat Furnace Temperature Uniformity and Decarburization," *Mechanical Working and Steel Processing Proceedings*, 603-616, 1989.

T.T. Charalampopoulos and J.D. Felske, "Refractive Indices of Soot Particles Deduced from In-Situ Laser Light Scattering Measurements," *Combust. Flame*, 68, 283-294, 1987.

J.D. Felske, P.-F. Hsu and J.C. Ku, "The Effect of Soot Particle Optical Inhomogeneity and Agglomeration on the Analysis of Light Scattering Measurements in Flames," *J. Quant. Spectrosc. Radiat. Trans.*, 35, 447-465, 1986.

J.C. Ku and J.D. Felske, "Determination of the Refractive Indices of Mie Scatterers from Kramers-Kronig Analysis of Spectral Extinction Data," *J. Opt. Soc. Am.* A3, 617-623, 1986.

J.D. Felske and S. Kumar, "On Computing Radiative Heat Flux Distributions Using the F_N Method," *Int. J. Heat Mass Transf.*, 29, 635-637, 1986.

S. Kumar and J.D. Felske, "Radiative Transport in a Planar Medium Exposed to Azimuthally Unsymmetric Radiation," *J. Quant. Spect. Radiat. Transf.*, 35, 187-212, 1986.

J.C. Ku and J.D. Felske, "The Range of Validity of the Rayleigh Limit for Computing Mie Scattering and Extinction Efficiencies," *J. Quant. Spect. Radiat. Trans.*, 31, 569-574, 1984.

J.D. Felske, T.T. Charalampopoulos and H.S. Hura, "Determination of the Refractive Indices of Soot Particles from the Reflectivities of Compressed Soot Pellets," *Combust. Sci. Tech.*, 37, 263-283, 1984.

J.D. Felske and P.F. Roy, "Computation of the Reflectance and Transmittance of an Absorbing Film on a Transparent Substrate," *Thin Solid Films*, 109, L113-L117, 1983.

J.D. Felske, "Optical Properties of Dissipative Media," *Am. J. Physics*, 51, 932-936, 1983.

J.D. Felske, Z.Z. Chu and J.C. Ku, "Mie Scattering Subroutines (DBMIE and MIEVO): A Comparison of Computational Times," *Appl. Opt.* 22, 2240-2241, 1983.

T.T. Charalampopoulos and J.D. Felske, "Total Band Absorptance, Emissivity and Absorptivity of the Pure Rotational Band of Water Vapor," *J. Quant. Spect. Radiat. Trans.*, 30, 89-96, 1983.

J.D. Felske and T.T. Charalampopoulos, "Gray Gas Weighting Coefficients for Arbitrary Gas-Soot Mixtures," *Int. J. Heat Mass Trans.*, 25, 1849-1855, 1982.

A. Ameri and J.D. Felske, "Radiation Configuration Factors for Obliquely Oriented Finite Length Circular Cylinders," *Int. J. Heat Mass Trans.*, 25, 726-736, 1982.

J.D. Felske and K.M. Lee, "Nongray Particulate Radiation in an Isothermal Cylindrical Medium," *J. Heat Trans.*, 103, 121-126, 1981.

E. Ruckenstein and J.D. Felske, "Turbulent Natural Convection at High Prandtl Numbers," *J. Heat Trans.*, 102, 773-775, 1980.

J.D. Felske, "Analysis of an Evacuated Cylindrical Solar Collector," *Solar Energy*, 22, 567-570, 1979.

J.D. Felske, "Approximate Radiation Shape Factors Between Two Spheres," *J. Heat Trans.*, 100, 547-548, 1978.

J.D. Felske, "The Effect of Off-South Orientation on the Performance of Flat Plate Solar Collectors," *Solar Energy*, 20, 29-36, 1978.

J.D. Felske and C.L. Tien, "The Use of the Milne-Eddington Absorption Coefficient for Radiative Heat Transfer in Combustion Systems," *J. Heat Trans.*, 99, 458-465, 1977.

J.D. Felske and C.L. Tien, "Wide Band Characterization of the Total Band Absorptance of Overlapping Infrared Gas Bands," *Combust. Sci. Tech.*, 11, 111-117, 1975.

C.L. Tien, J.D. Felske and A. Dayan, "Analytical Basis for Fire Radiation," *Letters in Heat and Mass Transfer*, 1, 79-81, 1974.

J.D. Felske and C.L. Tien, "Infrared Radiation from Nonhomogeneous Gas Mixtures Having Overlapping Bands," *J. Quant. Spect. Radiat. Trans.*, 14, 35-48, 1974.

J.D. Felske and C.L. Tien, "A Theoretical Closed Form Expression for the Total Band Absorptance of Infrared-Radiating Gases," *Int. J. Heat Mass Trans.*, 17, 155-158, 1974.

J.D. Felske and C.L. Tien, "Calculation of the Emissivity of Luminous Flames," *Combust. Sci. Tech.*, 7, 25-31, 1973.

Conferences (refereed abstracts)

V. Vandadi, S.J. Kang, J.D. Felske, and H. Masoud, "Interfacial Transport Alone Accounts for Coffee-Ring Deposition," 69th Annual Meeting of the APS Division of Fluid Dynamics – Session: 'Drops – Wetting and Moving Contact Line Effects', 61, Nov. 2016.

H. Masoud and J.D. Felske, "Analytical Solution for Stokes Flow Inside an Evaporating Sessile Drop: Spherical and Cylindrical Cap Shapes," 67th Annual Meeting of the APS Division of Fluid Dynamics – Session: 'Drops – Wetting and Moving Contact Line Effects', 54, Nov. 2009.

H. Masoud and J.D. Felske, "Analytical Solution for Inviscid Flow Inside an Evaporating Sessile Drop," 66th Annual Meeting of the APS Division of Fluid Dynamics – Session: 'Drops – Wetting and Moving Contact Line Effects', 53 Nov. 2008.

Blekhman, D.I., Mollendorf, J.C., Felske, J.D., Lordi, J.A. and Joshi, A.M., "Roots Compressor – High Temperature Testing and Modeling", ASME Int'l. Mech. Eng. Cong., November 13-19, 2004.

Blekhman, D.I., Mollendorf, J.C., Felske, J.D., and Lordi, J.A., "Multi-Control-Volume Analysis of the Compression Process in a High-Temperature Root's Type Compressor", Int'l. Soc. Rotating Machinery Cong., February 10-14, 2002.

Blekhman, D.I., Mollendorf, J.C., Felske, J.D., and Lordi, J.A., "Analysis of a High-Pressure-Ratio Root's-Type Compressor Producing a Very High Temperature Outlet Gas Stream", Int'l. Soc. Rotating Machinery Conf., March 26-30, 2000.

H. Wang and J.D. Felske, "Thermomechanical Analysis of Four-Lobe Rotors in a Roots-Type Multi-Recompression Heater," Int'l. Soc. Rotating Machinery Conf., March 2000.

S.R. Falta and J.D. Felske, "A Numerical Investigation of Droplet Combustion in Natural, Forced, and Mixed Convection," Symposium on Thermal Science and Engineering in Honor of Chancellor Chang-Lin Tien, November 1995.

W.J. Stry, J.D. Felske and N. Ashgriz, "The Combustion of Free Flowing Droplets of Chlorinated Benzenes, Alkanes, and Their Mixtures," Report No. LHWC-CRL-20010-92, October 1992. Presented at the Central States Meeting, Combustion Institute, March 1992. (*Best Paper Award*)

J.C.Y. Lee, J.D. Felske and N. Ashgriz, "Flame Propagation Across Alkane-in-Water Emulsions," Report No. LHWC-CRL-10010-92, October 1992. Presented at the Central States Meeting, Combustion Institute, March 1992.

W.J. Stry and J.D. Felske, "On Reheat Furnace Temperature Uniformity and Decarburization," 31st Mechanical Working & Steel Processing Conference (Iron and Steel Society), Chicago, IL, October 1989. (Published in the Proceedings).

J.D. Felske, P.-F. Hsu and J.C. Ku, "Scattering Characteristics of Chain Aggregates of Small Absorbing Spheres," The 1985 Annual Meeting of the American Association of Aerosol Research, Albuquerque, NM, November 1985.

T.T. Charalampopoulos and J.D. Felske, "Optical Properties of Soot," 16th Annual Meeting of the Fine Particle Society, Miami Beach, FL, April 1985.

J.D. Felske, "Optical Properties of Combustion Generated Particulates," Proceedings of the Governor's Conference on Expanding the Use of Coal in New York State: Problems and Issues," Albany, NY, 435-442, May 1981.

J.D. Felske, et al., "Solar Dehumidification of Citicorp Center," Proceedings of the Solar Cooling for Buildings Workshop, Los Angeles, CA, August 4-6, 1975.

C.L. Tien, J.D. Felske and A. Dayan, "Calculation of Infrared Radiation from Flames," 1973 International Seminar on Heat Transfer from Flames, Trogir, Yugoslavia, August 1973.

J.D. Felske and C.L. Tien, "Calculation of the Emissivity of Luminous Flames," Meeting of the Western States Section/Combustion Institute, October 1972. (Published in Combust. Sci. Tech.).

Invited Seminars

"Computation of Radiation Heat Transfer from Flames and Fires," Factory Mutual Research Corporation, Norwood, MA, March 1974.

"Nongray Particulate Radiation in a Homogeneous Cylindrical Medium," Dept. of Mathematics, SUNY/Buffalo, April 1980.

"Hydrocarbon Soot Particles: Optical Properties and Radiative Heat Transfer," Dept. of Chemical Engineering, SUNY/Buffalo, March 1981.

"Optical Properties of Combustion Generated Particulates," General Electric Corporation Research and Development Center, Schenectady, NY, May 1981.

"Optical Properties of Combustion Generated Particulates," Dept. of Mechanical Engineering, University of Kentucky, Lexington, KY, March 1982.

"Measuring Thermal Radiation," The Art and Science of Dynamic Flow Measurement-Dantech Electronics Short Course, SUNY/Buffalo, July 1984.

"Thermal Destruction of Hazardous Wastes," Civil Engineering Seminar Course (410), New York State Center for Hazardous Waste Management, SUNY/Buffalo, March 1988.

"Incineration of Liquid Hazardous Wastes," NYS Society of Professional Engineers, September 1990.

Formal Reports

J.D. Felske, N. Ashgriz, J.C.Y. Lee, W.J. Stry, R.A. Washburn, and S. Wehe, "Combustion Characteristics of Hazardous Liquid Waste," Report No. LHWC-CRL-10002-91, February 1991.

N. Ashgriz, J.D. Felske, J.-Y. Poo and S. Wehe, "Combustion Characteristics of Hazardous Liquid Waste," Report No. LHWC-CRL-40005-89, May 1989.

J.D. Felske, N. Ashgriz, J.-P. Seet, P.H. Grant, R.L. Berg and W.J. Stry, "Development and Application of Flow Visualization Techniques for Cooled Structures," Report No. FVCS-CRL-30001-89, January 1989.

J.D. Felske, "The Hazardous Waste Problem and The Incineration Option," Report No. LHWC-CRL-10012-88, December 1988.

N. Ashgriz, J.D. Felske, J.-Y. Poo and S. Wehe, "Combustion Characteristics of Hazardous Liquid Waste," Report No. LHWC-CRL-10011-88, November 1988.

J.D. Felske, N. Ashgriz, J.-P. Seet, P.H. Grant, R.L. Berg and W.J. Stry, "Flow Behavior in Cooled Structures," Report No. FVCS-CRL-00009-88, September 1988.

J.D. Felske and C.J. Ku, "Refractive Index Measurements of Propane Soot and Philback N-326 Particles in the Visible Wavelengths," Fluid and Thermal Sciences Laboratory, Tech. Report TR83-1, SUNY/Buffalo, March 1983.

J.D. Felske and K.M. Lee, "Nongray Particulate Radiation in an Isothermal Cylindrical Medium," Fluid and Thermal Sciences Laboratory, Tech. Report TR80-1, SUNY/Buffalo, February 1980. (Published in J. Heat Trans.)

J. Meyer et al., "Solar Dehumidification Experiment on the Citicorp Center Building," MIT Energy Laboratory Report No. MIT-EL77-005, June 1977.

Book Reviews

Radiation Heat Transfer: A Statistical Approach, by J.R. Mahan, Wiley, 2002; Applied Mechanics Reviews 56, B15 (2003).

Statistical Thermodynamics and Microscale Physics, by V.P. Carey, Cambridge Univ. Press, Cambridge, UK., 1999; Applied Mechanics Reviews 53, B116-B117 (2000).

Thermodynamics of Critical Phenomena, by V.A. Rabinovich and Yu.E. Sheludyak, Begell House, 1998; Applied Mechanics Reviews 52, B76-B77 (1999).

Radiation Heat Transfer in Disperse Systems, by L.A. Dombrovsky, Begell House, 1996; Applied Mechanics Reviews 50, B33-B34 (1997).

INVENTIONS

Method of Altering A Fluid-Borne Contaminant, J.F. Garvey, J.A. Lordi, J.C. Mollendorf, and J.D. Felske; U.S. Patent No.: US 8,142,716 B2; Mar. 27, 2012.

Method of Altering A Fluid-Borne Contaminant, J.F. Garvey, J.A. Lordi, J.C. Mollendorf, and J.D. Felske; U.S. Patent No.: US 7,335,333 B2; Feb. 26, 2008.

GRADUATE STUDENTS DIRECTEDDoctor of Philosophy

Charalampopoulos, T.T., "Optical Properties of Soot Particles in Flames by Classical and Dynamic Light Scattering, SUNY/Buffalo, February 1985.

Ku, J.C., "Determination of the Optical Properties of Soot Agglomerates from Spectral Transmittance Measurements," SUNY/Buffalo, February 1985.

Stry, W.J., "The Combustion of Free Flowing Droplets of Chlorinated Benzenes, Alkanes, and Their Mixtures," SUNY/Buffalo, September 1992.

Falta, S.R., "A Numerical Investigation of Droplet Combustion in Natural, Forced, and Mixed Convection," SUNY/Buffalo, April 1995.

Kelestemur, M.H., "Fatigue Crack Growth Behavior and Overload Effect of AISI 304 Stainless Steel in Different Atmospheres", SUNY/Buffalo (co-advisor with Dr. T. Chaki), September 1998.

Obidi, Y., "Optimization of the Thermal Stress Relief of a Welded Solid Piece," SUNY/Buffalo, February 1999.

Wang, Honglu, "Thermomechanical Analysis of the Rotating Impeller Lobes of a Roots-Type Multi-Recompression Heater," SUNY/Buffalo, August 1999.

McCall, J.N., "Numerical Simulation of Solid Contact/Impact and Gas Flow in a High Pressure Safety Valve," SUNY/Buffalo, May 2005.

Master of Science

Vorthman, R.G., "An Analysis of a Liquid Desiccant Dehumidifier Regenerated with Water or Solar Power," Thesis, MIT, May 1977.

Ramsay, R.G., "Simulation of a Hot-Air Residential Solar Heating System with Pebble Bed Storage," Thesis, MIT, May 1977.

Spedden, R.H., "Thermal Radiation View Factor Analysis for Finite Circular Cylinders," Thesis, MIT, August 1977.

Charalampopoulos, T.T., "Part I: A Critical Evaluation of the Reflection Technique for the Determination of the Optical Properties of Hydrocarbon Particulates from Highly Polished Pellet Surfaces. Part II: The Total Emissivity of the Hydrocarbon Particulates Expressed as the Sum of Gray Gases with an Application to a Rectangular-Parallelepiped Enclosure," Thesis, SUNY/Buffalo, February 1981.

Hsiao, C-C., "Radiative Heat Transfer in Nongray Particulate Media with Linear Anisotropic Scattering," Thesis, SUNY/Buffalo, September 1981.

Ameri, A., "Radiation Configuration Factors for Obliquely Oriented Finite Length Circular Cylinders," Thesis, SUNY/Buffalo, February 1982.

Ku, C.J., "Light Extinction Techniques and Related Dispersion Theories for Determining the Complex Refractive Indices of Hydrocarbon Soots," Thesis, SUNY/Buffalo, Feb. 1982.

Chu, Z.-Z., "A Comparison Between Wiscombe's and Dave's Mie Subroutines," Project, SUNY/Buffalo, October 1982.

Grant, P.H., "Determination of the Optical Properties of Hydrocarbon Soot Particles from Transmittance Measurements: Data Inversion Schemes Utilizing the Mie Scattering Theory," Thesis, SUNY/Buffalo, June 1983.

Roy, P.F., "A Computer Program to Calculate the Spectral Reflectance, Transmittance and Absorptance for Multilayer Thin Film Systems," Project, SUNY/Buffalo, June 1983.

Hura, H.S., "Determination of the Optical Properties of Soot Particles from the Effective Optical Properties of Compressed Soot Pellets," Thesis, SUNY/Buffalo, September 1983.

Son, J.H., "Electromagnetic Scattering by Assemblies of Rayleigh Sized Spheres," Project, SUNY/Buffalo, June 1984.

Kumar, S., "Radiative Transport in an Absorbing/Anisotropically Scattering Planar Medium Exposed to a Collimated Incident Flux - An Analytical Solution by the Method of Singular Eigenfunction Expansions," Thesis, SUNY/Buffalo, September 1984.

Hsu, P.-F., "The Effect of Particle Nonhomogeneity and Morphology on Inversion of Light Scattering Data," Thesis, SUNY/Buffalo, February 1986.

Hilbers, G.H., "Renovation of a Bidirectional, Spectral Reflectometer," Thesis, SUNY/Buffalo, September 1987.

Talebkah, A., "Numerical Methods Tutorial-Interactive Computer-Aided Instruction," Project, SUNY/Buffalo, June 1988.

Stry, W.J., "Analysis and Numerical Simulation of Heat and Mass Transport Phenomena in a Walking Beam Steel Reheat Furnace," Thesis, SUNY/Buffalo, October 1989.

Seet, J.-P., "Flow Behavior in Compact Cooled Structures," Thesis, SUNY/Buffalo, Feb. 1990.

Wehe, S.D., "Absolute Minimum Ignition Energy and Ignition Probability in Fuel Sprays; and: Bicomponent Suspended Droplet Combustion," Thesis (N. Ashgriz, co-advisor), SUNY/Buffalo, April 1990.

Lee, J.C.Y., "Basic Combustion Characteristics of Oil-In-Water and Water-In-Oil Emulsions: Flame Propagation and Suspended Droplet Combustion," Thesis, SUNY/Buffalo, June 1991.

O'Neill, E.J. (Jr.), "Determination of the Complex Index of Refraction and Size Distribution of an Aqueous Suspension of Carbon Particulates Using Dynamic and Classical Laser Light Scattering Measurements," Thesis, SUNY/Buffalo, August 1991.

Colangelo, A.M., "Finite Element Modeling of Ironmaking Refractories," Project, SUNY/Buffalo, April 1992.

Hornung, D., "Fire Sprinkler System for a High-Rise Senior Citizen Apartment Building," Project, SUNY/Buffalo, September 1992.

Runk, R.M., "Radiant Panels for Automotive Heating," Project, SUNY/Buffalo, May 1993.

O'Brien, J.F., "Improving Harrison's Tube Side Heat Transfer Coefficient Correlation," Project, SUNY/Buffalo, January 1994.

Tischleder, J., "Flame Propagation Velocity of Highly-Concentrated Alkane-in-Water Emulsions," Thesis, SUNY/Buffalo, December 1994.

Blatter, A.D., "Heat Feedback to the Surface of an Oil-in-Water Emulsion During Flame Propagation," Thesis, SUNY/Buffalo, December 1995.

Wei, L., "Influence of Surfactants and Polymer Additives on Flame Propagation Over Oil-in-Water Emulsions," Thesis, SUNY/Buffalo, February 1996.

- Wang, H., "Thermal, Mechanical, and Phase Transformation Phenomena During the Cooling of Steel," Project, SUNY/Buffalo, August 1997.
- Krawiecki, S., "Simulation of a POX-Fired Steam Reformer," Project, SUNY/Buffalo, January 1999.
- Olewnicki, Joseph, "A Numerical Analysis of Dinosaur Metabolism," Thesis, SUNY/Buffalo, June 2000.
- Chiotasso, Cyril, "Shock and Blast Waves in Enclosed Rectangular and Cylindrical Geometries," Thesis, SUNY/Buffalo, August 2001.
- Song, Dosoon, "Coupled Fluid-Structure Dynamics of Swimming Fins," Project, SUNY/Buffalo, December 2001.
- George, Sanal, "Transient Phonon and Photon Transport using Laguerre Polynomials, Legendre Moments and Galerkin Methods," Project, SUNY/Buffalo, December 2004.
- Senneff, James, "Reducing Consumption in a Compressive Heating System," Thesis, SUNY/Buffalo, May 2006.
- Masoud, Hassan, "Analytical and Numerical Study of Flow Field and Particle Deposition Inside an Evaporating Sessile Drop," Thesis, SUNY/Buffalo, May 2009.
- Bachison, Gregory, "Model of Solar Load on ~South-Facing Wall of Davis Hall, Including Shading by Louvres and Surrounding Buildings," Dec. 2013
- Basit, Syed, "Measurement of Blackbody Emissions," June 2017.

CONSULTING

Monsanto Corp.
Singer Corp.
Sohio Electrominerals
DuPont
SCIPAR, Inc.
Keller Technology Corp.
Praxair, Inc.
Calspan Corp.
Harrison Division - GM
Flow Safe
Conax Buffalo Technologies

TEACHINGUndergraduate

At MIT: Heat and Mass Transfer
Measurement & Instrumentation
Mechanics of Solids
Introduction to Design

At UB:

Heat Transfer
Fluid Mechanics
Heat Transfer Laboratory
Advanced Thermodynamics
Compressible Fluid Flow
Design of Thermal Systems
Senior Design
Intro. to Engineering

Graduate

Advanced Heat Transfer
Radiation Heat Transfer
Classical Thermodynamics

Heat Transfer I and II
Fluid Mechanics I and II
Combustion
Dynamics of Real Gases
Statistical Thermodynamics
Radiation Heat Transfer
Electromagnetic Scattering
Thermodynamics of Materials
Kinetics of Materials

SERVICEUniversity-wide

Academic Computing Advisory Committee (ACAC)
 Conserve UB-Energy Conservation Committee
 Advisory Committee for Graduate Groups
 University Biosafety Committee
 Search Committee for Director of Science and Engineering Library
 University Honors Program
 Information and Library Resources Committee
 UB Business Alliance - Technology Advisory Panel (Patents & Licensing)
 Sterbutzel Research Fund Oversight Committee
 Interdisciplinary Research Development Fund (IRDF) Committee

Faculty-wide

Electron Microscope Committee
 DEC Educational Software Committee
 Faculty Personnel Committee (FPC), 4-three year appointments
 Promotions Committee (formerly FPC), (chaired once)
 Freshman Mentor Program, (10-years)
 Academic Programs Committee
 Science and Engineering Library Committee

Departmental

Graduate Studies Committee (served 5-years, chaired 1-year)
 PhD Qualifying Exam Committees: Fluid-Thermal; Materials Science
 Faculty Advisor, MEA Graduate Student Association (4-years)
 Faculty Recruiting Committees: Fluid-Thermal; Materials Science
 Undergraduate Transport Lab committee (Chairman, 3-years)
 OPAS Committee (7-years)
 Computer Committee (two 1-year appointments)
 Space and Equipment Committee (two 1-year appointments)
 Academic Planning Committee
 Zimmer Research Award Selection Committee
 Undergraduate Curriculum Committee (16-years)
 Fluid/Thermal Sciences Program Committee
 Materials Science Program Committee

COMMUNITY SERVICE

Cleveland Drive Presbyterian Church: Elder, Session, Sunday School Teacher, Boys Club, Choir; Committees: Christian Education, Finance, Endowment, Missions/Evangelism, Search (Director of Christian Education; Organist/Choir Director).