

## BIOGRAPHICAL RESUME

Name: Frank P. Incropera

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Place of Birth: Lawrence, Massachusetts

Birthdate: May 12, 1939 Nationality: U.S.A.

Education:

S.B.M.E., 1961, Massachusetts Institute of Technology  
M.S.M.E., 1962, Stanford University  
Ph.D., 1966, Stanford University

Employment:

- 1960, M.I.T. - Industry Cooperative Work Program (9 months with Barry Controls Corporation). Design, test, and analysis of shock and vibration isolation systems.
- 1961, Summer Employment with Aerojet General Corporation. Heat transfer and thermodynamic analyses of propellant storage systems for large thrust boosters.
- 1962-64, Heat Transfer Specialist, Lockheed Missiles and Space Company. Development of improved techniques for predicting aerodynamic heating in laminar and turbulent boundary layers with and without separation. Responsibility for the thermal protection of several planetary probe systems and the supervision of two engineers and a computer aid during the second year. Part time student at Stanford University.
- 1964-66, Research Assistant, Mechanical Engineering Department, Stanford University.

Design of equipment used to produce a high temperature plasmajet and application of spectroscopic and probe plasma diagnostic techniques. Studies relating to plasmajet flow transition phenomena and plasma heat transfer.

- 1966-69, Assistant Professor, School of Mechanical Engineering, Purdue University. Graduate and undergraduate teaching in thermodynamics and high temperature gas dynamics. Research in high temperature gas dynamics.
- 1969 (Summer), NASA-ASEE Fellow at the Ames Research Center, Mountain View, California. Research in high temperature gas dynamics.
- 1969-73, Associate Professor, School of Mechanical Engineering, Purdue University. Graduate and undergraduate teaching in thermodynamics and heat transfer. Research in high temperature gas dynamics and bioengineering.
- 1973-98, Professor, School of Mechanical Engineering, Purdue University. Graduate and undergraduate teaching in heat and mass transfer, thermodynamics, and fluid mechanics. Research on radiative transfer in absorbing-scattering-emitting media; free, mixed, forced and double-diffusive convection; boiling and two-phase flow; applications to energy conversion processes, electronic equipment cooling and materials processing.
- 1973-74, Visiting Scholar, Mechanical Engineering Department, University of California, Berkeley, California. Research on heat and mass transfer processes related to powerplant waste heat utilization and solar energy collection.
- 1983, 87, Guest Professor, Dipartimento di Energetica, Universita Degli Studi di Pisa, Pisa, Italy (September-October). Research on mixed convection heat transfer.
- 1988, Guest Professor, Lehrstuhl C für Thermodynamik, Technical University of Munich, Federal Republic of Germany (August-December). Research on electronic cooling and solidification of binary substances.
- 1987-89, Assistant Dean of Engineering for Research and Graduate Programs, Purdue University .
- 1989-98, Head, School of Mechanical Engineering, Purdue University .
- 1998-06, McCloskey Dean of Engineering and Clifford and Evelyn Brosey Professor of Mechanical Engineering, University of Notre Dame.
- 2007, Visiting Professor, Chemical Engineering Department, Massachusetts Institute of Technology. Undergraduate and graduate level teaching related to energy production and utilization.
- 2008- Clifford and Evelyn Brosey Professor of Mechanical Engineering. Undergraduate teaching in thermodynamics, heat transfer and energy conversion.

## Society Memberships:

American Society of Mechanical Engineers  
 American Society of Engineering Education  
 American Association for the Advancement of Science

## Awards and Honors:

Pi Tau Sigma  
 Tau Beta Pi  
 Sigma Xi  
 Garrett Fellow, Stanford University (1961-62)  
 Harry Solberg Award for Best Teacher in Mechanical Engineering (1973)  
 A.A. Potter Award for Best Teacher in Engineering (1973)  
 Harry Solberg Award for best Teacher in Mechanical Engineering (1977)  
 Ralph Coats Roe Award for Excellence in Teaching and Other Notable Contributions to the Mechanical Engineering Profession, American Society of Engineering Education (1982)  
 Invited Lecturer, Southwest Mechanics Lecture Series (1983, 1998)  
 George Westinghouse Award for Outstanding Accomplishments in Teaching and Research, American Society of Engineering Education (1983)  
 Fellow, American Society of Mechanical Engineers (1984)  
 Third Annual Alexander Graham Christie Lecturer, Johns Hopkins University (1986)  
 Harry Solberg Award for Best Teacher in Mechanical Engineering (1986)  
 Keynote Lecture, Eighth International Heat Transfer Conference, San Francisco (1986)  
 Co-author, ASME Heat Transfer Division Best Paper Award:  
 "Transient Behavior of a Radiatively Heated Double-Diffusive System." (1987)  
 Invited Contributor, Special 50th Anniversary Issue of the ASME Journal of Heat Transfer (1988)  
 Senior United States Scientist Award of the Alexander von Humboldt Foundation, Bonn, Federal Republic of Germany (1988)  
 Keynote Lecture, Twentieth Symposium of International Center for Heat and Mass Transfer, Dubrovnik, Yugoslavia (1988)  
 Melville Medal for Best Original Paper on a Mechanical Engineering Subject Published by the American Society of Mechanical Engineers: "Transient Behavior of a Radiatively Heated Double-Diffusive System." Co-author (1988)  
 Heat Transfer Memorial Award of the American Society of Mechanical Engineers:  
 "For two decades of outstanding research contributions of consistently high quality, breadth and depth, notably in radiation heat transfer, double-diffusive and mixed convection, and plasma heat transfer; and for significant contributions to engineering education." (1988)  
 Keynote Lecture, Ninth National Heat Transfer Conference of Unione Italiana di Termofluidodinamica, Pisa, Italy (1991)  
 Centennial Award of the American Society of Engineering Education for Exceptional Contributions to Education and the Profession of Engineering (1993)  
 Keynote Lecture, NATO Advanced Study Institute on Cooling of Electronic Systems, Cesme, Turkey (1993)

- Worcester Reed Warner Award of the American Society of Mechanical Engineers:  
 "For contributions to the science and practice of heat transfer and to heat transfer pedagogy." (1995)
- Elected to National Academy of Engineering.  
 "For research on the science and practice of heat transfer and for contributions to engineering education." (1996).
- Thirteenth Annual Hawkins Memorial Lecture, Purdue University (1996)
- Keynote Lecture, Fourth World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics, Brussels, Belgium (1997)
- Keynote Lecture, Fifth Thermal Engineering Joint Conference of the American and Japanese Societies of Mechanical Engineers, San Diego, California (1999)
- Ninth Annual Byron Short Memorial Lecture, University of Texas, Austin (1999)
- Inaugural Member of *Book of Great Teachers*, Purdue University (1999)
- Keynote Lecture, ENCIT 2000-Brazilian Conference on Thermal Engineering and Sciences, Porto Alegre, Brazil (2000)
- Institute for Scientific Research *Highly Cited Researchers* data Base (2001)  
 Named as one of the world's 100 most highly cited researchers in all fields of engineering, based on the number of journal citations recorded from 1981 to 1999 (ISI *Web of Science*: [www.isinet.com/isi/highlycited/](http://www.isinet.com/isi/highlycited/))
- Co-author, ASME Heat Transfer Division Classic Paper Award (2001)  
 Awarded annually for a paper published in the heat transfer literature at least 15 years ago that is cited extensively in other publications and has significantly contributed to the technology and science of heat transfer ("Convection Heat Transfer from Discrete Heat Sources in a Rectangular Channel," *International Journal of Heat and Mass Transfer* 29, 1051-1058, 1986).
- Fellow, American Association for the Advancement of Science (2005).
- Keynote Lecture, Annual Mechanical Engineering Conference of Venezuela, Caracas (2006)
- Citations in American Men and Women of Science, Marquis Who's Who in America, Marquis Who's Who in the Midwest, Who's Who in Engineering, Who's Who in Technology Today, International Who's Who in Engineering, and Marquis Who's Who in Frontiers of Science and Technology

#### Research Activities:

Heat transfer fundamentals related to radiation transfer in scattering-absorbing media; double-diffusive convection; free, forced and mixed convection; solidification; and boiling. Applications related to energy conversion, biomedical engineering, electronic equipment cooling, casting and quenching of metal alloys, and laser-based machining operations.

#### Administration and Service:

Includes serving on numerous committees at the department, school, university, state, and national levels, as well as chairing the Heat and Mass Transfer Area of Mechanical Engineering, serving as Assistant Dean of Engineering for Research and Graduate Programs, and serving as Head of the School of Mechanical Engineering (1989-1998) at Purdue University. Serving as Dean of Engineering at the University of Notre Dame University (1998 to 2006).

### On-Campus Teaching:

Thermodynamics (Undergraduate and Graduate, Classical and Statistical)  
 Fluid Mechanics (Undergraduate)  
 Heat Transfer (Undergraduate and Graduate, Lecture and Laboratory)  
 Thermal Systems Analysis (Dual Level)  
 Technology and Values (Undergraduate)  
 Energy and Society (Undergraduate)

### Continuing Education:

#### Off-Campus Teaching

Indianapolis Extension (Graduate Level Thermodynamics, Classical and Statistical, 1966 and 1970)  
 All Regional Campuses, TV (Graduate Level Heat Transfer, 1977 and 1980)  
 Cummins Engine Company (Graduate Level Heat Transfer 1980)

#### Short Courses:

Major or exclusive responsibilities for short course lectures on  
 Fundamentals of Heat Transfer, Purdue University, West Lafayette, November 1-4, 1977.  
 Industrial Energy Conservation, Purdue University, West Lafayette, May 1-4, 1978.  
 Industrial Energy Conservation, Purdue University, West Lafayette, April 24-26, 1979.  
 Fundamentals of Heat Transfer: A Review, IBM Corporation, Poughkeepsie, NY, May 20-31, 1985.

### Workshops and Conferences:

Includes serving as panelist, lecturer and session or conference organizer. A detailed list is provided in Appendix C.

### Invited Lectures:

Lectures dealing with plasma transport processes, radiative transfer in absorbing-scattering media, mixed convection, double-diffusive convection, waste heat recovery, materials processing, electronic cooling, energy utilization, and/or engineering education have been given at:

University of Illinois, Urbana-Champaign (1966)  
 Ohio State University, Columbus (1966)  
 Purdue University, W. Lafayette, Indiana (1966, 1974, 1986, 1996, 2004)  
 NASA-Ames Research Laboratory, Mountain View, California (1969)  
 Aerospace Research Laboratories, Dayton, Ohio (1972)  
 University of California, Berkeley (1974)  
 University of Florida, Gainesville (1978)  
 Alcoa Technical Center, Alcoa, Pennsylvania (1979)  
 Arizona State University, Tempe (1982)

University of Texas, Austin (1983, 1999)  
Texas A & M, College Station (1983, 1998)  
Shell Development Laboratories, Houston, Texas (1983)  
Louisiana State University, Baton Rouge (1983)  
Universita di Pisa, Pisa, Italy (1984)  
Argonne National Laboratory, Argonne, Illinois (1985)  
IBM Corporation, Poughkeepsie, New York (1986)  
Carnegie Mellon University, Pittsburgh, Pennsylvania (1986)  
Johns Hopkins University, Baltimore, Maryland (1986)  
Washington State University, Pullman (1987)  
University of Nevada, Reno (1987)  
University of Iowa, Iowa City (1987)  
Rockwell-Collins Electronics, Cedar Rapids, Iowa (1987)  
University of Notre Dame, South Bend, Indiana (1987, 1998, 1999, 2006)  
University of Karlsruhe, Federal Republic of Germany (1988, 2002)  
Technical University of Darmstadt, Federal Republic of Germany (1988)  
Philips, Eindhoven, The Netherlands (1988)  
3M European Technical Center, Antwerp, Belgium (1988)  
University of Stuttgart, Federal Republic of Germany (1988)  
Ansaldo Elettronica, Rome, Italy (1988)  
University of Essen, Federal Republic of Germany (1988)  
Siemens AG, Munich, Federal Republic of Germany (1988)  
Technical University of Munich, Federal Republic of Germany (1988, 2002)  
University of Kentucky, Lexington (1989)  
3M Technical Center, St. Paul, Minnesota (1989)  
University of Pennsylvania, Philadelphia (1990)  
Clemson University, Clemson, South Carolina (1991)  
State University of New York, Binghamton (1992)  
Wright State University, Dayton, Ohio (1993)  
University of Arizona, Tucson (1993)  
General Electric Aircraft Engines, Cincinnati, Ohio (1994)  
University of Michigan, Ann Arbor (1994)  
University of Massachusetts, Amherst (1995)  
University of Miami, Miami, Florida (1995)  
Georgia Institute of Technology, Atlanta (1996)  
University of Connecticut, Storrs (1997)  
Tulane University (1998)  
Oklahoma University, Norman (1998)  
Oklahoma State University, Stillwater (1998)  
Southwest Research Institute, San Antonio, Texas (1998)  
University of Bonn, Federal Republic of Germany (2002)  
Technical University of Berlin (2002)  
University of Rhode Island (2002)  
Modine Manufacturing Company (2003)  
ETH Zurich (2006)

Reviewer:

National Science Foundation  
National Research Council  
Department of Energy  
National Aeronautics and Space Administration  
Journal of the American Institute of Chemical Engineers  
Journal of the American Institute of Aeronautics and Astronautics  
Journal of Quantitative Spectroscopy and Radiative Transfer  
ASME Journal of Heat Transfer  
ASME Journal of Solar Energy Engineering  
AIAA Journal of Thermophysics and Heat Transfer  
Solar Energy  
International Journal of Heat and Mass Transfer  
Review of Scientific Instruments  
International Journal of Heat and Fluid Flow  
Canadian Journal of Chemical Engineering  
Wärme und Stoffübertragung  
Experimental Thermal and Fluid Science  
Metallurgical Transactions B  
Experiments in Fluids  
Numerical Heat Transfer  
ASME Journal of Electronic Packaging  
Experimental Heat Transfer  
Journal of Materials Processing and Manufacturing Science  
ASEE Journal of Engineering Education  
ASME Journal of Engineering for Industry  
ASME Journal of Manufacturing Science and Engineering  
International Journal of Heat and Technology

Patents and/or Invention Disclosures:

Plasma Arc Scalpel, U.S. Dept. Commerce,  
Patent No. 3,991,764, November 16, 1976.

Graduate Thesis Supervision:

Sixty-two (62) M.S. and thirty (30) Ph.D. theses have been completed in the general field of heat and mass transfer with applications to high temperature gas dynamics, bioengineering, energy conversion and utilization, electronic cooling, and materials processing.

Research Funding:

Industrial and governmental sources of research support include Alcoa, IBM, NSF, NASA, DOE, the State of Indiana, and the Aerospace Research Laboratories. Total funding to date is \$9,779,000.

## SCHOLARLY WORKS

*Refereed Open Literature Publications*

1. Incropera, F.P. and G. Leppert, "Flow Transition Phenomena in a Subsonic Plasmajet," *Journal of American Institute of Aeronautics and Astronautics* 4, 1087-1088, 1966.
2. Incropera, F.P. and G. Leppert, "Investigation of Arc Jet Temperature Measurement Techniques," *ISA Transactions* 6, 34-41, 1967.
3. Incropera, F.P. and G. Leppert, "Laminar Flow Heat Transfer from an Argon Plasma in a Circular Tube," *Int. J. Heat Mass Transfer* 10, 1861-1873, 1967.
4. Bower, W.W. and F.P. Incropera, "Heat Transfer, Development Length, and Friction Factor Correlations for the Asymptotic Region of a Laminar Arc Constrictor," *Wärme und Stoffübertragung* 2, 150-162, 1969.
5. Incropera, F.P. and R.L. Kingsbury, "The Feasibility of Wall Parameter Correlations for Internal, Field-Free Plasma Flows," *Int. J. Heat Mass Transfer* 12, 1641-1659, 1969.
6. Incropera, F.P. and J.R. Viegas, "Nonequilibrium in an Arc Constrictor," *Journal of American Institute of Aeronautics and Astronautics* 8, 1722-1724, 1970.
7. Giannaris, R.J. and F.P. Incropera, "Nonequilibrium Effects in an Atmospheric Argon Arc Plasma," *J. Quant. Spectrosc. Radiat. Transfer* 11, 291-307, 1970.
8. Lukens, L.A. and F.P. Incropera, "Anode Heat Transfer in a Constricted Tube Arc," *Journal of American Institute of Aeronautics and Astronautics* 9, 2453-2454, 1971.
9. Clark, K.J. and F.P. Incropera, "Thermochemical Nonequilibrium in an Argon Constricted Arc Plasma," *Journal of American Institute of Aeronautics and Astronautics* 10, 17-18, 1972.
10. Lukens, L.A. and F.P. Incropera, "A Technique for Delineating Convective and Radiative Wall Heat Fluxes," *Journal of American Institute of Aeronautics and Astronautics* 10, 359-361, 1972.
11. Link, W.J. and F.P. Incropera, "Experimental Heat Transfer Distribution in an Arc Constrictor of Variable Area," *Int. J. Heat Mass Transfer* 15, 873-875, 1972.
12. Lukens, L.A. and F.P. Incropera, "Electric Field Intensity and Wall Heat Transfer Measurements for the Heating Region of an Atmospheric Cascade Arc," *Int. J. Heat Mass Transfer* 15, 935-951, 1972.

13. Incropera, F.P. and E.S. Murrer, "Spectroscopic Measurements for Atmospheric Nitrogen and Helium Arcs," *J. Quant. Spectrosc. Radiat. Transfer* 12, 1369-1377, 1972.
14. Bower, W.W. and F.P. Incropera, "Numerical Calculations for the Turbulent Arc Constrictor," *Journal of American Institute of Aeronautics and Astronautics* 10, 1662-1666, 1972.
15. Giannaris, R.J. and F.P. Incropera, "Radiative and Collisional Effects in a Cylindrically Confined Plasma - I. Optically Thin Considerations," *J. Quant. Spectrosc. Radiat. Transfer* 13, 167-181, 1973.
16. Giannaris, R.J. and F.P. Incropera, "Radiative and Collisional Effects in a Cylindrically Confined Plasma - II. Absorption Effects," *J. Quant. Spectrosc. Radiat. Transfer* 13, 183-195, 1973.
17. Link, W.J., Glover, J.L., Edwards, J.L., Henderson, M.R., Yaw, P.B. and F.P. Incropera, "Wound Healing of Mouse Skin Incised with a Plasma Scalpel," *J. Surgical Research* 14, 1973.
18. Incropera, F.P., "Procedures for Modeling Laminar Cascade Arc Behavior," *IEEE Transactions of Plasma Science PS-1*, 3-9, 1973.
19. Lee, J.B., Incropera, F.P. and R.C. Peterson, "Measurement of Arc Radiation for Selected Spectral Regions," *Journal of American Institute of Aeronautics and Astronautics* 11, 1455-1456, 1973.
20. Lee, J.B. and F.P. Incropera, "Spectral Distribution of Radiation from the Cascade Arc Plasma," *J. Quant. Spectrosc. Radiat. Transfer* 13, 1539-1552, 1973.
21. Scott, R.K. and F.P. Incropera, "Nonequilibrium Flow Calculations for the Hydrogen Constricted Arc," *Journal of American Institute of Aeronautics and Astronautics* 11, 1714-1719, 1973.
22. Weirich, W.E., Smith, C.R., Incropera, F.P. and I. Mandelbaum, "Hypothermia for Cardiac Arrest Surgery in the Dog," *J. American Animal Hospital Association* 9, 540-547, 1973.
23. Kach, E.A. and F.P. Incropera, "Induction Thermocoagulation: Thermal Response and Lesion Size," *IEEE Transactions of Biomedical Engineering BME-21*, 8-12, 1974.
24. Greene, C.S., Incropera, F.P. and K.J. Daniel, "Thermal Properties of Krypton and Xenon Laminar Arc Plasmas," *Int. J. Heat Mass Transfer* 17, 370-372, 1974.
25. Incropera, F.P., Henderson, M.R. and W.J. Link, "A Model for Tissue Response to High Intensity Energy Sources," *Medical and Biological Engineering* 12, 199-207, 1974.
26. Henderson, M.R., Link, W.J., Incropera, F.P. and J.L. Glover, "Gas Transport Resulting from Plasma-Scalpel Surgery," *Medical and Biological Engineering* 12, 208-213, 1974.

27. Incropera, F.P., "Leaf Photosynthesis: The Influence of Environmental Variables," *J. Environ. Quality* 4, 440-447, 1975.
28. Link, W.J., Incropera, F.P. and J.L. Glover, "A Plasma Scalpel: Comparison of Tissue Damage and Wound Healing with Electrosurgical and Steel Scalpels," *Archives of Surgery* 111, 392-397, 1976.
29. Mauck, G.W., Smith, C.R., Incropera, F.P. and W.E. Weirich, "An Experimental and Theoretical Investigation of Hypothermia in Dogs," *ASME Transactions, J. Biomechanical Engineering*, 195-202, 1977.
30. Incropera, F.P. and J.F. Thomas, "A Model for Solar Radiation Conversion to Algae in a Shallow Pond," *Solar Energy* 20, 157-165, 1978.
31. Yaghoubi, M.A. and F.P. Incropera, "Natural Convection from a Heated Horizontal Cylinder Submerged in a Shallow Water Layer," *Proc. Sixth International Heat Transfer Conf.*, Toronto, Vol. 2, NC-15, 269-274, 1978.
32. Collins, C.E., Incropera, F.P. and C.P.L. Grady, "The Effect of Temperature Control on Biological Wastewater Treatment," *Water Research* 12, 547-554, 1978.
33. Daniel, K.J., Laurendeau, N.M. and F.P. Incropera, "Comparison of Predictions with Measurements for Radiative Transfer in an Algal Suspension," *Int. J. Heat Mass Transfer* 21, 1379-1384, 1978.
34. Privoznik, K.G., Daniel, K.J. and F.P. Incropera, "Absorption, Extinction and Phase Function Measurements for Algal Suspensions of *Chlorella Pyrenoidosa*," *J. Quant. Spectrosc. Radiat. Transfer* 20, 345-352, 1978.
35. Incropera, F.P. and K.G. Privoznik, "Radiative Property Measurements for Selected Water Suspensions," *Water Resources Research* 15, 85-89, 1979.
36. Daniel, K.J., Laurendeau, N.M. and F.P. Incropera, "Prediction of Radiation Absorption and Scattering in Turbid Water Bodies," *ASME Transactions, J. Heat Transfer* 101, 63-67, 1979.
37. Incropera, F.P. and W.G. Houf, "A Three-Flux Method for Predicting Radiative Transfer in Aqueous Suspensions," *ASME Transactions, J. Heat Transfer* 101, 496-501, 1979.
38. Incropera, F.P. and M.A. Yaghoubi, "Free Convection Heat Transfer from Heated Cylinders Immersed in a Shallow Water Layer," *ASME Transactions, J. Heat Transfer* 101, 743-745, 1979.
39. Houf, W.G. and F.P. Incropera, "An Assessment of Techniques for Predicting Radiation Transfer in Aqueous Media," *J. Quant. Spectrosc. Radiat. Transfer* 23, 101-115, 1980.

40. Incropera, F.P. and M.A. Yaghoubi, "Buoyancy Driven Flows Originating from Heated Cylinders Submerged in a Finite Water Layer," *Int. J. Heat Mass Transfer* 23, 269-278, 1980.
41. Wagner, T.R., Incropera, F.P. and W.G. Houf, "Visible Radiation Transfer in a Black Ink Suspension," *ASME Transactions, J. Heat Transfer* 102, 709-714, 1980.
42. Yaghoubi, M.A. and F.P. Incropera, "Analysis of Natural Convection due to Localized Heating in a Shallow Water Layer," *Numerical Heat Transfer* 3, 315-329, 1980.
43. Wagner, T.R. and F.P. Incropera, "Radiative Property Measurements for India Ink Suspensions of Varying Concentration," *Solar Energy* 25, 549-554, 1980.
44. Incropera, F.P., Wagner, T.R. and W.G. Houf, "A Comparison of Predictions and Measurements of the Radiation Field in a Shallow Water Layer," *Water Resources Research* 17, 142-148, 1981.
45. Bennon, W.D. and F.P. Incropera, "Mixed Convection Heat Transfer from Horizontal Cylinders in a Finite Water Flow," *ASME Transactions, J. Heat Transfer* 103, 540-545, 1981.
46. Poplawsky, C.J., Incropera, F.P. and R. Viskanta, "Mixed Layer Development in a Double-Diffusive Thermohaline System," *ASME Transactions, J. Solar Energy Engineering* 103, 351-359, 1981.
47. Lewis, W.T., Incropera, F.P. and R. Viskanta, "Interferometric Study of Stable Salinity Gradients Heated from Below or Cooled from Above," *J. Fluid Mechanics* 116, 411-430, 1982.
48. Lewis, W.T., Incropera, F.P. and R. Viskanta, "Interferometric Study of Mixing Layer Development in a Laboratory Simulation of Solar Pond Conditions," *Solar Energy* 28, 389-401, 1982.
49. Stoddard, M.C. and F.P. Incropera, "Distribution of Solar Radiation in Natural Waters under Field Conditions," *Solar Energy* 28, 425-432, 1982.
50. Incropera, F.P. and R. Viskanta, "Optical Studies of Mixed Layer Development in a Double-Diffusive, Thermohaline System," *Proc. Seventh International Heat Transfer Conference*, Hemisphere Publishing Corporation, Vol. 2, 419-424, 1982.
51. Bergman, T.L., Incropera, F.P. and R. Viskanta, "A Multi-Layer Model for Mixing Layer Development in a Double-Diffusive, Thermohaline System Heated from Below," *Int. J. Heat Mass Transfer* 25, 1411-1418, 1982.
52. Bergman, T.L., Houf, W.G. and F.P. Incropera, "Effect of Single Scatter Phase Function Distribution on Radiative Transfer in Absorbing-Scattering Liquids," *Int. J. Heat Mass Transfer* 26, 101-107, 1983.

53. Wang, G.S., Incropera, F.P. and R. Viskanta, "Experimental Study of Mixed Convection Heat Transfer in a Horizontal Open Channel Flow with Uniform Bottom Heat Flux," *ASME Transactions, J. Heat Transfer* 105, 817-822, 1983.
54. Matthews, L.K., Viskanta, R. and F.P. Incropera, "Development of Inverse Methods for Determining Thermophysical and Radiative Properties of High Temperature Fibrous Materials," *Int. J. Heat Mass Transfer* 27, 487-496, 1984.
55. Craig, T.D. and F.P. Incropera, "Radiation Transfer in Absorbing-Scattering Liquids: I. Radiance and Flux Measurements," *J. Quant. Spectrosc. Radiat. Transfer* 31, 127-137, 1984.
56. Incropera, F.P., Craig, T.D. and W.G. Houf, "Radiation Transfer in Absorbing-Scattering Liquids: II. Comparisons of Measurements with Predictions," *J. Quant. Spectrosc. Radiat. Transfer* 31, 139-147, 1984.
57. Voelkel, D.D. and F.P. Incropera, "Performance Model for a Radiation Recuperator," *Heat Transfer Engineering* 5, 74-84, 1984.
58. Houf, W.G., Incropera, F.P. and R. Viskanta, "Effect of Solar Radiation on Thermal and Hydrodynamic Conditions in Laminar, Open Channel Flow," *ASME Transactions, J. Solar Energy Engineering* 106, 475-482, 1984.
59. Zumbrennen, D.A., Viskanta, R. and F.P. Incropera, "Heat Transfer through Granular Beds at High Temperature," *Wärme und Stoffübertragung* 18, 221-226, 1984.
60. Houf, W.G., Incropera, F.P. and R. Viskanta, "Thermal Conditions in Irradiated Slowly Moving Liquid Layers," *ASME Transactions, J. Heat Transfer* 107, 92-98, 1985.
61. Matthews, L.K., Viskanta, R. and F.P. Incropera, "Combined Conduction and Radiation Heat Transfer in Porous Materials Heated by Intense Solar Radiation," *ASME Transactions, J. Solar Energy Engineering* 107, 29-34, 1985.
62. Osborne, D.G. and F.P. Incropera, "Laminar, Mixed Convection Heat Transfer for Flow between Horizontal Parallel Plates with Asymmetric Heating," *Int. J. Heat Mass Transfer* 28, 207-218, 1985.
63. Bergman, T.L., Incropera, F.P. and W.H. Stevenson, "Use of a Miniature Fiber Optic Refractometer for Measurement of Salinity in Double-Diffusive Thermohaline Systems," *Review of Scientific Instruments* 56, 291-296, 1985.
64. Bergman, T.L., Incropera, F.P. and R. Viskanta, "A Differential Model for Salt-Stratified, Double-Diffusive Systems Heated from Below," *Int. J. Heat Mass Transfer* 28, 779-788, 1985.
65. Osborne, D.G. and F.P. Incropera, "Experimental Study of Mixed Convection Heat Transfer for Transitional and Turbulent Flow between Horizontal, Parallel Plates," *Int. J. Heat Mass Transfer* 28, 1337-1344, 1985.

66. Incropera, F.P., Prescott, P.J. and D.D. Voelkel, "Hybrid Systems for Furnace Waste Heat Recovery: I. Use of a Radiation Recuperator with a Rankine Cycle," *Heat Recovery Systems* 5, 321-330, 1985.
67. Prescott, P.J. and F.P. Incropera, "Hybrid Systems for Furnace Waste Heat Recovery: II. Convection Recuperators and a Rankine Cycle," *Heat Recovery Systems* 5, 331-339, 1985.
68. Ramadhyani, S., Moffatt, D.W. and F.P. Incropera, "Conjugate Heat Transfer from Small Isothermal Heat Sources Embedded in a Large Substrate," *Int. J. Heat Mass Transfer* 28, 1945-1952, 1985.
69. Bergman, T.L., Incropera, F.P. and R. Viskanta, "Parameterization of System Behavior for Salt-Stratified Solutions Heated from Below with and without Salinity-Maintained Mixed Layers," *Int. J. Heat Mass Transfer* 28, 1617-1621, 1985.
70. Incropera, F.P. and J.A. Schutt, "Numerical Simulation of Laminar, Mixed Convection in the Entrance Region of Horizontal, Rectangular Ducts," *Numerical Heat Transfer* 8, 707-729, 1985.
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## MAJOR ADMINISTRATIVE RESPONSIBILITIES

*Purdue University*

Chairman, Heat and Mass Transfer Area of Mechanical Engineering (9/74 to 8/85). Responsible for providing leadership in the following areas: coordination and improvement of undergraduate and graduate level courses in heat and mass transfer; operation and improvement of undergraduate instructional laboratory in heat transfer; improvement and operation of the Heat Transfer Research Laboratory; recruitment of new faculty and graduate students for the Heat and Mass Transfer Area; and the offering of special short courses by the heat and mass transfer faculty. Responsibilities also included being an advocate of the Heat and Mass Transfer Area within and outside of the School of Mechanical Engineering.

Member, Mechanical Engineering Head's Advisory Committee (9/75 to 10/88). Responsible for advising the Head of the School on matters involving administrative and academic policy.

Assistant Dean for Research and Graduate Programs, Schools of Engineering (10/87 to 6/89). Responsible for oversight of the Institute for Interdisciplinary Engineering Studies (included six research centers with annual expenditures exceeding \$5,000,000), coordination of multi-disciplinary research proposals, and administration of fellowship programs.

Head, School of Mechanical Engineering (6/89 to 6/98). Administrative responsibility for education, research and service functions involving approximately fifty-five faculty members, fifty-five staff and service personnel, nine hundred undergraduate students, and three hundred graduate students. Major functions included, but were not restricted to, recruitment of faculty, maintaining and enhancing interfaces with alumni and industry, exercising budgetary control over expenditures, and providing leadership with respect to major teaching and research thrusts of the School.

*University of Notre Dame*

Dean, College of Engineering (7/98 to 7/06). Administrative responsibility for education, research and service functions of five academic departments involving approximately one-hundred faculty members, sixty staff and service personnel, eight hundred undergraduate students and four hundred graduate students. Major functions included, but were not restricted to, recruitment of department chairs and faculty, maintaining and enhancing interfaces with alumni and industry, exercising budgetary controls over expenditures, and providing leadership with respect to major teaching and research thrusts of the College.