

JOSEPH C. MOLLENDORF

CURRICULUM VITAE

1. Biographical and Personal Information:

- a. Date of birth: 22 September 1944
- b. Place of birth: Beloit, Wisconsin
- c. Citizenship: USA
- d. Work address: Home address:
SUNY at Buffalo 274 Ruskin Road
Mechanical and Aerospace Engineering Amherst, NY 14226-4256
335 Jarvis Hall 716-834-7942
Buffalo, NY 14260-4400
716-645-2593 x 2319 (office)
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molendrf@buffalo.edu
<http://www.mae.buffalo.edu/people/faculty/molendorf/>
<http://www.smbs.buffalo.edu/crese/Faculty%20and%20Staff.htm>
- e. Name of spouse: Heather Lynne
- f. Names and birth dates of children: Miranda Andrea, 30 June 1978
Serena Andrea, 23 March 1980
- g. Hobbies: Model and homebuilt aircraft
Jogging – completed 1999 marathon

2. Academic History:

Ph.D. Mechanical Engineering, Cornell University, Ithaca, New York, 9/68 - 10/71. Dissertation title, "The Effect of Thermal Buoyancy on the Hydrodynamic Stability of a Round, Laminar, Vertical Jet".

M.S. Mechanical Engineering, Cornell University, Ithaca, New York, 9/66 - 6/69. Thesis title, "An Experimental Study of Vigorous Transient Natural Convection".

B.S. Mechanical Engineering, Clarkson College of Technology, Potsdam, New York, 9/62 - 6/66.

3.

Employment Record:

Professor, State University of New York at Buffalo, Dept. of Physiology and Biophysics, 3/03 - present.

Professor, State University of New York at Buffalo, Dept. of Mechanical and Aerospace Engineering, 9/85 - present.

Associate Director, Center for Research in Special Environments, State University of New York at Buffalo, 10/85 - 6/92, 12/99 - present.

Special Assistant Vice President for Sponsored Programs (Part Time), State University of New York at Buffalo, 12/85 - 9/90.

Associate Professor, State University of New York at Buffalo, Dept. of Mechanical Engineering, 9/79 - 9/85.

Assistant Professor, State University of New York at Buffalo, Dept. of Mechanical Engineering, 9/74 - 9/79.

Research Scientist, Western Electric Engineering Research Center, Princeton, NJ, 10/71 - 7/74.

Research Assistant, Cornell University, 6/71 - 10/71.

Teaching Assistant, Cornell University, 9/70 - 6/71.

NSF Fellowship (Traineeship), Cornell University, 9/66 - 9/70.

Engineer, Bell Aerospace, 6/66 - 9/66.

Dormitory Counselor, Clarkson College, 9/64 - 6/66.

Assistant Technician, Dept. of Civil Engineering, Clarkson College, 9/64 - 9/65.

4. Honors and Awards:

Visionary Innovator Award, "In recognition of Licensing Your Invention 'Low Drag Swim Apparel' to TYR Sport, Inc", 2004

United States Non-Provisional Patent, "Process for Enhancing Material Properties and Materials so Enhanced", SN10/645726, Notice of allowance issued 03/29/06, SUNY-R5766 (with D. Pendergast, E. Bardy, S. Samimy, E. Stimson and C. Dauria)

United States Non-Provisional Patent Application, “Body thermal regulation/measurement system”, SN 11/126011, 5/10/05, SUNY-R5870 (with D Pendergast)

United States Non-Provisional Patent Application, “Low Drag Swim Apparel”, SN10/758139, 01/15/04, SUNY-R5853 (with D. Pendergast, A. Termin and R. CuvIELLO), Licensed to TYR Sport

“Notable Contributions to Teaching and Learning at UB”, February 6, 2003.

United States Non-Provisional Patent Application, 10/765,807, “Method of Altering a Fluid-Borne Contaminant”, 01/27/04 (with J.F. Garvey, J. Felske and J. Lordi).

United States PCT Patent Application, PCT/US04/02152, “Method of Altering a Fluid-Borne Contaminant”, 01/27/04 (with J.F. Garvey, J. Felske and J. Lordi).

United States Non-Provisional Patent Application, 10/645,726, “Process for Enhancing Material Properties and Materials so Enhanced”, 08/21/03 (with D. Pendergast, E. Bardy, S. Samimy, E. Stimson and C. Dauria).

United States PCT Patent Application, PCT/US03/2684, “Process for Enhancing Material Properties and Materials so Enhanced”, 08/21/03 (with D. Pendergast, E. Bardy, S. Samimy, E. Stimson and C. Dauria).

United States Non-Provisional Patent Application, 10/758,139, “Low Drag Swim Apparel”, 01/15/04 (with D. Pendergast, A. Termin, R. CuvIELLO).

Directed First Place Winner, Erik R. Bardy, “Design and Testing of a Total Body Thermal Protection Garment”, Mechanical and Aerospace Engineering Graduate Student Association Poster Competition, 04/15/03 (with David Pendergast and James Felske).

United States Provisional Patent Application, 60/445,979, “Thermal Destruction of Biotoxins by Compressive Heating of Air Stream”, 02/07/03 (with J.F. Garvey, J. Felske and J. Lordi)

Certificate of Recognition, “With thanks for the positive influence you have had on students at the University at Buffalo as described in the ‘Year After Survey’ of 1999 graduates”, presented by the Career Planning and Placement Division of Student Affairs, February 21, 2002.

United States Provisional Patent Application, 60/405,094, “Process for Enhancing Material Properties and Materials so Enhanced”, 08/21/02 (with D. Pendergast, E. Bardy, S. Samimy, E. Stimson and C. Dauria)

First Prize, 8th Annual Statewide Student Conference, Collegiate Science & Technology Entry Program (with Courtney Miller and Yesenia Ramos, "Birth Simulator Machine"), April 2000.

United States patent, 5,411,038, "Method of Using Cervical Orthosis", 5/2/95 (with R. Catipovic and L. Pascale).

United States patent 5,320,596, "Cervical Orthosis", 6/14/94 (with R. Catipovic and L. Pascale).

United States patent 5,242,179, "Four - Limb Exercising Attachment for Wheelchairs," 9/7/93 (with D. Beddome, W. Macy, K. Peebles, and T. Dressing).

Golden Key National Honor Society Honorary Member, 1990.

WBFO "UB Person of the Day," 1989.

Chancellor's Award for Excellence in Teaching (1985).

Private pilot certificate (1983).

Recipient of Region III ASME "Outstanding Student Section Faculty Advisor Award" for 1978 - 1979.

Recipient of Buffalo ASME Section, "Service to Mechanical Engineering Award", May 9, 1979.

Directed winner of Ward E. Bullock Award for "Design and Construction of an Instrumented Isothermal Surface and Natural Convection Velocity and Temperature Measurements in a Fluid with Large Variable Viscosity Effects", by Mr. Robert D. Padlog, 1978.

Reviewer for Applied Mechanics Reviews, May 1976 to 1985.

Listed in Who's Who in the East, 18th Edition, 1976 - 1977.

Recipient of 1976 Tau Beta Pi "Professor of the Year in Engineering", Award at State University of New York at Buffalo.

Appointed the specialist Ph.D. recruiter for Bell Labs and the Western Electric Engineering Research Center for Mechanical Engineering at Cornell University, Ithaca, New York, 1976.

United State Patent 3,904,102, "Apparatus and Method of Soldering, Fusing or Brazing", September 9, 1975 (with T. - Y. Chu and R.C. Pfahl, Jr.).

Selected for 1974 Internship Program at Western Electric Engineering Research Center.

NSF Trainee, Cornell University (September 1966 - September 1970).

Most Promising Senior Mechanical Engineer Award, Clarkson College of Technology, (1966).

NSF Undergraduate Research Participation Grant, "An Analytical and Experimental Analysis of the Figure of Merit of a Closed - Spaced Thermionic Diode", Clarkson College of Technology (June 1965 - September 1965), with Prof. R.A. Kenyon.

R.H. Miller Scholarship, Clarkson College of Technology (1963 - 1966).

New York Air Youth (Model Airplane) State Champion, 1960.

5. **Teaching (not graduate teaching assistantships, (*) means developed new course):**

EAS 101 Engineering for Nonmajors (Honors Seminar), Fall 1992.

EAS 103 Introduction to Engineering, Fall 1989-1994.

ME 214 Applied Thermodynamics, Mercer County Community College, Trenton, NJ, Spring 1974.

ME 335 Transport Processes I (Undergraduate Fluid Mechanics), SUNYAB, Fall 1974, Fall 1975, Fall 1977, Fall 1978, Fall 1979.

ME 336 Transport Processes II (Undergraduate Heat Transfer), SUNYAB, Spring 1975, Spring 1977, Spring 1982 - present.

MEA 460C Ultralight Project (Undergraduate), SUNYAB, Fall 1984-Fall 1986.

MAE/ASE 479 Aircraft Design and Construction Fall 1990, Fall 1991, Fall 1992.

(*)ME 611 Convective Heat Transfer (Graduate), SUNYAB, Spring 1975.

EAS 204 Thermodynamics I (Undergraduate), SUNYAB, Fall 1975, Spring 1977.

ME 546 Heat Transfer II (Graduate), SUNYAB, Spring 1976.

(*) MAE 434 Aircraft Design, SUNYAB, Spring 1994-Spring 2001.

(*) MAE 459 Assistive Device Design (National Science Foundation Sponsored), 1989-present.

ME 414 Mechanical Engineering Synthesis (Undergraduate Senior Project):

Mr. K.H. Jahn, "Design and Construction of a Wallaston Prism Schlieren Interferometer", SUNYAB, Spring 1976;

Messers. L.W. Stachniak and M.R. Templet, "Heat Transfer from a Concentrated Heat Source on a Vertical Adiabatic Surface", SUNYAB, Spring 1976;

Mr. Robert D. Padlog, "Design and Construction of an Instrumented Isothermal Surface and Natural Convection Velocity and Temperature Measurements in a Fluid with Variable Viscosity Effects", SUNYAB, Spring 1977;

Mr. Peter E. Weidler, "Storage of Solar Energy Utilizing Phase Change", SUNYAB, Spring 1977;

Mr. Eric A. Gallion, "Using Air as the Working Fluid in a Concentrating Solar Collector", SUNYAB, Spring 1977;

Messers. R.D. Beam, C.A. McMaster and G.R. Williams, "Design and Construction of a Concentrating Solar Collector", SUNYAB Spring 1977;

Messers. R.J. Markel and G.A. Kerwin, "Construction of an Instrumented Concentrating Solar Collector", SUNYAB, Spring 1978.

ME 499 Independent Study (Undergraduate Project):

Mr. T.P. Kristich, "Design and Construction of an Adiabatic Surface for Heat Transfer Measurements in Air", SUNYAB, Spring 1976;

Mr. J.S. Cangelosi, "Visualization of the Convective Motion above a Heated Horizontal Surface Facing Upward", SUNYAB, Fall 1976;

Mr. Joseph S. Cangelosi, "A Wollaston Prism Schlieren Interferometer for Flow Visualization", SUNYAB, Spring 1977;

Edith M. Harmon, "Measured Temperature Above a Concentrated Heat Source on a Surface in Air", SUNYAB, Spring 1977;

Mr. John R. Soltysiak, "Effect of Prandtl Number on the Temperature Above a Concentrated Heat Source on a Surface", SUNYAB, Spring 1977;

Mr. Eric A. Gallion, "An Inexpensive Selective Surface for Concentrating Solar Collectors", SUNYAB, Summer 1977;

Mr. John G. Moran, "Design and Construction of a Concentrating Solar Collection System", SUNYAB, Summer 1977;

Mr. David J. Kukulka, "Transport Properties of Sea Water", SUNYAB, Summer 1977;

Messers. G.T. Kerwin, C.A. McMaster and D.M. Strasser, "Instrumenting a Concentrating Solar Collection System", SUNYAB, Fall 1977;

Mr. D.J. Kukulka, "Calculated Specific Heat of Seawater", SUNYAB, Fall 1977;

Messers. R.E. Danforth and S.M. Rivard, "Construction of an Instrumented Hot Air Solar Collector", SUNYAB, Spring 1978;

Mr. Colin K. Drummond, "Application of a Concentrating Solar Collector to Heat a Small Room", SUNYAB, Fall 1978;

Mr. Robert G. Mencer, "Application of a Hot Air Solar Collector to Heat a Small Room", SUNYAB, Fall 1978;

Mr. Colin K. Drummond, "Application of a Concentrating Solar Collector to Heat a Small Room", SUNYAB, Spring 1979;

Mr. C.M. Restrepo, "Application of a Hot Air Solar Collector to Heat a Small Room", SUNYAB, Spring 1979;

Mr. Trevor Poole, "Free Dendritic Ice Crystal Growth from Subcooled Water", SUNYAB, Spring 1980;

Mr. F. El - Hayek, "The Convectively Cooled Freezing of Subcooled Metal Spheres (numerical solution)", SUNYAB, Summer 1980;

Mr. Trevor Poole, "Free Dendritic Ice Crystal Growth from Subcooled Water", SUNYAB, Fall 1980;

Mr. Robert Burgess, "Naturally Occurring Polygonal Cracks", SUNYAB, Spring 1981;

Messers. A. Kaplan and A. Glantzman, "Photographs of Freely - Growing Ice Crystals in a Subcooled Melt", SUNYAB, Spring 1981;

Mr. H. Hussein, "Ice Crystal Growth From a Subcooled Melt", SUNYAB, Fall 1981;

Messers. H.J. Hussein and J.M. Smietana, "Design of an Instrumented Cold Chamber for Ice Crystal Growth Studies", Spring 1982;

Mr. C.A. Tallon, "Photograph of Ice Crystals Growing in a Subcooled Melt", SUNYAB, Fall 1982;

Mr. J.S. Tashman, "Analysis of Flight Trajectory and Design of an Instrumented Airplane Launch System", SUNYAB, Fall 1982;

Mr. J.S. Tashman, "Videotape of Laboratory Simulation of Compressed Air Energy Storage Champagne Effect", SUNYAB, Spring 1983;

Mr. P.A. Simonetti, "Measurements of Gas Composition Above a Decompressing Liquid Saturated with Air", SUNYAB, Spring 1983, Fall 1983;

"Design and Construction of an Ultralight Aircraft for High Altitude Record", SUNYAB, Summer 1983, Fall 1983, Spring 1984, Summer 1984, Fall 1984; Spring 1985;

Mr. Michael Ganis, "Thermal Analysis of Microwave Heating of Tissue", SUNYAB, Spring 1984;

Messers. Mark E. Brown and Robert Gaeta, "Thermal Critique of the Thermal Dilution Method", SUNYAB, Spring 1984;

Mr. Jeffrey M. Ippoliti, "Airships - Past, Present and Future", SUNYAB, Spring 1984;

Ms. Lois Westfall, "Design and Construction of a Chicken Egg Incubator", Fall 1984.

(*)Several lectures in ME 613 Stability and Transition (Graduate), Spring, 1976.

ME 545 Heat Transfer I (Graduate) SUNYAB, Fall 1976, Fall 1982, Fall 1983, Fall 1984.

(*)ME 469 Environmental Transport Processes (Senior elective), SUNYAB, Spring 1978.

ME 376 Computers and Their Applications (Undergraduate), SUNYAB, Spring 1978.

MEA 335 now MAE 337, Transport Processes Laboratory (Undergraduate), SUNYAB, Fall 1979, Fall 1981.

(*)ME 336 now MEA 338, Transport Processes Laboratory (Undergraduate), SUNYAB, Spring 1980, Fall 1980, Spring 1985.

(*)Several lectures in ASE/MEA 331, Introduction to Aerospace Engineering (Undergraduate), SUNYAB, Fall 1982, Fall 1983, Fall 1984.

Sabbatical Leave, Spring 1981.

6. Graduate Training:

Carey, V.P., "An Experimental Study of Laminar Natural Convection Thermal Boundary Layers", M.S. Thesis, State University of New York, Buffalo, NY, February 1976.

Mercier, R.J., "Thermally Induced Surface Stresses", M.S. Thesis, State University of New York, Buffalo, NY, September 1976 (with Prof. S. Malkin).

Jahn, K.H., "Convective Heat Transfer Measurements with a Wollaston Prism Schlieren Interferometer (Part I) and A Numerical Investigation of Density Extrema Effects on the Stability of a Horizontally Confined Fluid (Part II)", M.S. Thesis, State University of New York, Buffalo, NY, September 1977.

Ajiniran, E.B., "Transport from a Heated Horizontal Surface Facing Upward in an Extensive Cold Water Ambient", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, December 1977.

Johnson, R.S., "Transport from a Melting Vertical Ice Slab in Saline Water", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, September 1978.

Padlog, R.D., "Variable Property Effects on Transport in Pure Water Around the Density Extremum", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, September 1979.

Hwang, L. - T., "An Investigation of Density Extrema and Boundary Condition Effects on the Instability of a Horizontally Confined Fluid Layer", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, September 1980.

Arif, "Flow Visualization of the Development of Convection Above a Suddenly Heated Horizontal Surface in a One - Dimensionally Extensive Ambient Fluid", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, June 1981.

Kukulka, D.J., "Thermodynamic and Transport Properties of Pure and Saline Water", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, June 1981.

Jang, J. - Y., "Freezing of a Convectively Cooled Sphere with Initial Subcooling", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, June 1981 (with Prof. W.N. Gill).

Lu, W.F., "An Experimental Investigation of the Effects of Density Extrema and Boundary Conditions on the Stability of a Horizontally Confined Water Layer", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, January 1982.

Urso, T.L., "Simulation of a Highly Compressed Air - Water Solution Undergoing a Decrease in Hydrostatic Pressure", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, February 1983.

Jang, J. - Y., "Part I: Rapid Solidification of Subcooled Small Metallic Drops - - Internal Nucleation, Part II: The Stability of a Vertical Natural Convection Boundary Layer with Temperature Dependent Viscosity", Ph.D. Dissertation, State University of New York at Buffalo, Amherst, NY, June 1983.

Hwang, Y. - K., "The Stability of Some Multiple Steady - States and the Effect of Motion Pressure in Vertical Natural Convection Flows in Cold Water", Ph.D. Dissertation, State University of New York at Buffalo, Amherst, NY, May 1984.

O'Brien, P., "Thermal Stress and Fatigue Strength in a Pressure Vessel Under Cyclic Temperature Loading", M.S. Project, State University of New York at Buffalo, Amherst, NY, May 1984.

Fale, J.E., "Ice Crystal Growth in a Subcooled Melt", M.S. Thesis, State University of New York at Buffalo, Amherst, NY.

Lamb, J., "Effect of Thermal Stratification Near a Vertical Ice Slab in Cold Water," M.S. Thesis, State University of New York at Buffalo, Amherst, NY, September 1985.

Hamouda, H., "Transport and Hydrodynamic Stability of an Extensive Fluid Suddenly Heated From Below," Ph.D. Dissertation, State University of New York at Buffalo, Amherst, NY, August 1985.

Qureshi, A., "The Effect of Fluid Motion and Impurities on Air Absorption and Release in Water", Ph.D. Dissertation, State University of New York at Buffalo, Amherst, NY, June 1986.

Moscaritollo, D. M., "Transient Pressure Response of the Gaseous Contents of a Thin - Walled, Spherical Pressure Vessel to Externally Varying Pressure", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, June 1986.

Kukulka, D.J., "An Experimental Study of the Transient Transport Near a Heated Horizontal Plate in an Ambient Fluid", Ph.D. Dissertation, State University of New York at Buffalo, Amherst, NY, June 1988.

Zima, M.J., "A Wind Tunnel Investigation of the Static Stability, Dynamic Stability and Aerodynamic Performance of the SUNYAB Ultralight Aircraft", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, September 1989.

Beddome, D. M., "Exercise Wheelchair Drive System Development", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, September 1991.

McPartland, M. D., "High Maneuverability Office Chair (HMOC)", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, July 1992.

Kelly, S. "Design of Hospital Bed Controls", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, July 1992.

Cicarella, J. S., "The Reciprocating Gait Orthosis Power-Assist Unit", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, July 1992.

Przybyla, K. R., "Thermal Analysis of a Breast Tumor Undergoing Microwave Hyperthermia", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, July 1992.

Gwin, M. A., "Wheelchair/Bicycle Exercise Ergometer", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, September 1992.

Branca, W. J., "A Practical Application in Heat Exchanger Design", M.S. Project, State University of New York at Buffalo, Amherst, NY, April 1993.

Mayrose, J., "Quantitative Rehabilitation Exercise System", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, April 1993.

Wee, K. Y., "Elecromechanical Induction of Osteogenesis: Motorized Adaptations for the Monticelli-Spinelli Circular External Fixation System", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, July 1993.

Poopisut, A., "Thermal Analysis of Planar Flow Casting", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, September 1993.

Behar, J., "Analytical Model of Melt - Spun Casting", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, July 1994.

Short, T., "Freezing Nucleation Mechanisms in Ice Storage Systems", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, July 1994.

Benzoni, A., "Digital Simulation of a Pneumatic Pressure Regulator", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, July 1995.

Nelson, K., "Refinement of the Design of a Wheelchair Ergometer", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, July 1995.

Darien, A. "Computer Control System for A wheelchair Ergometer", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, July 1997.

Prombut, P., "Characterization of Infiltration in a Medical Dry Room at Wilson Greatbatch Ltd.", M.S. Project, State University of New York at Buffalo, Amherst, NY, February 1999.

Howard, H., "Gas Separation by Tube Desalination", M.S. Project, State University of New York at Buffalo, Amherst, NY, February 1999.

Taggart, B., "Optimization of a Test Device to Quantify the Performance of Small-Scale Aircraft Propellers", M.S. Project, State University of New York at Buffalo, Amherst, NY, February 1999.

Smith, H.A.J., "A Theoretical Consideration of Gas Dynamic Processes for Ethylene Production", M.S. Thesis, State University of New York at Buffalo, Amherst, NY, June, 2001.

Le, Thai, "Gas Dynamic Calculations for Shock Wave Initiated Pyrolysis of Hydrocarbons", M.S. Project, State University of New York at Buffalo, Amherst, NY, February 2002

Syed, A., "Efficacy of an Angle-of Attack Indicator for Aircraft Flight Safety", M.S. Project, State University of New York at Buffalo, Amherst, NY, June 2002.

McDonald, D.R., "A Numerical Study of Leakage Flow in a Multi-Compression Heater", M.S. Project, State University of New York at Buffalo, Amherst, NY, June 2002.

Samimy, S., "A Theoretical and Experimental Analysis of Diver and Fin Performance in Underwater Swimming", M.S. Project, State University of New York at Buffalo, Amherst, NY, September, 2002.

Blekhman, D. I., "A Theoretical and Experimental Study of High Temperature Compressive Gas Heating", Ph.D. Dissertation, State University of New York at Buffalo, Amherst, NY, September 2002.

Joshi, A., "Clearance Analysis and Leakage Flow CFD Model of a Two Lobe Multi-Recompression Heater", M.S.Thesis, June 1, 2004.

Balikowski, J., "Sources and Storage of Energy for Free-Swimming Navy Divers", M.S. Thesis, June 1, 2005.

Currently - directed research:

Bardy, E., "Design and Testing of a Total Body Diver Thermal Protection garment", Ph.D. Dissertation.

McClain, Andrea, "A New Mathematical Model for Lung Pressure/Volume Behaviour"

Robert, Bouza, "Optimization of a Cervical Thoracic Orthosis"

Physiology Summer Fellows:

Sawson Samimy, Engineering, Univ. Buffalo 2002.

David Reynolds, Engineering, Univ. Buffalo 2002.

Mike Fletcher, Pre-med., Univ. Rochester 2002.

Colin Dauria, Med Student, Univ. Buffalo, 2002.

Sawson Samimy, Engineering, Univ. Buffalo 2001.

Mike Fletcher, Univ. Buffalo 2001.

Eric Stimson, Univ. Buffalo 2001.

7. Research Support:

Mollendorf, JC (PI), "Zoned measurement and manipulation of body temperature using new technologies", Sterbutzel Research Fund, 6/06 – 6/07, \$35,000

Mollendorf, JC (PI), "Zoned measurement and manipulation of body temperature using new technologies", Sterbutzel Research Fund, 6/05 – 6/06, \$35,000

Pendergast, DR (PI), JC Mollendorf (COPI), Office of Naval Research, "Design and Testing of a Total Body Diver Thermal Protection Garment", 1/29/05 - 9/30/06, \$250,000

National Science Foundation, "Undergraduate Bioengineering Design Projects", 9/04-8/09
\$125,000

CAT Award, "Thermal Destruction of Biotoxins by Compressive Heating of Air Stream", (with J.F. Garvey, J. Felske and J. Lordi)
\$30,000

Office of Naval Research, "Design and Testing of a Total Body Diver Thermal Protection Garment", with D. Pendergast, PI, 1/29/02 – 1/28/05
\$3,000,000

United States Navy, "Establishing a Multi-Center, Multi-Disciplinary Program for Improving Diver Thermal Protection Hardware in Warm and Cold Water", with D. Pendergast, PI, (and Duke University Medical Center and the Navy Experimental Diving Unit), 3/00-2/02
\$545,235

National Science Foundation, "Undergraduate Bioengineering Design Projects", 9/99-8/04
\$118,303

CUBRC, "Multi-Recompression Heater (MRH)", 6/97-6/02
\$82,186

Silipos Inc. and SPIR, "Analysis of an Artificial Leg Attachment Device", with P. Alexandridis 12/98-6/99
\$36,529

National Science Foundation, "Undergraduate Bioengineering Design Projects", 6/94-8/99
\$71,616

Department of Energy, "Applied Study: A Cooperative Model for Producing Assistive Devices," 10/1/90 - 9/30/93) (Co - Pi, W. Mann)
\$561,487

Department of Energy, "The Vocational Traineeship Program, 10/1/90 - 9/30/93 (Co - Pi, W. Mann)
\$313,464

NYSOMRDD, "Multidisciplinary Assistive Technology Adendum to: The Graduate Program to Prepare Occupational Therapists to Serve the

Developmentally Disabled in NYS. (with W. Mann, E. Steinfeld, D. Kauppi, D. Fish and S. Lawrence - Deidrich, Co - Pi's)
\$700,000

National Science Foundation, "Undergraduate Bioengineering Design Projects,"
7/89 – 5/94
\$80,400

NYSSTF, "Muscle Stimulating Wheelchair," 6/89 - 1/90. (with D. Fish and F. Mendel)
\$60,000

Rich Products, "The Leaking Container Problem," 1/89 - 12/90
\$12,000

NYSERDA, Wilson Greatbatch Corporation and NYSEG, "Thermal Ice Storage",
3/87 - 3/89
\$179,000

Allied Corporation, "Thermal Analysis of Melt Spun Casting", 9/86 - 9/87.
\$20,000

Moog - Carelton Corporation, "Mathematical Model of a Breathing Regulator",
1/87 - 1/88.
\$20,000

Allied Corporation, "Thermal Analysis of Melt - Spun Casting", 9/85 - 9/86.
\$ 10,000

Allied Corporation, "Thermal Analysis of Melt - Spun Casting", 9/84 - 9/85.
\$10,000

National Science Foundation, "Developing Flow and Heat Transfer Near a Suddenly Heated Horizontal Surface", 1/15/85 - 12/31/86.
\$120,865

Research Development Funds (SUNYAB), "Numerical and Experimental Studies of Buoyancy - Induced Flows in Cold Pure and Saline Water", 4/8/83 - 6/30/84 (with Prof. N.D. Kazarinoff).
\$12,466

Pratt and Whitney Aircraft Group, "Center Nucleation of Rapidly Solidified Small Subcooled Metallic Spheres," 6/1/82 - 9/1/83 (with Prof. W.N. Gill). \$8,000

National Science Foundation, "Analysis of Multiple Steady States in Natural Convection", 6/1/82 - 5/31/84 (with Prof. N.D.Kazarinoff).
\$23,000

National Science Foundation, "Rate Determining Mechanisms in Ice Crystal Growth with Convective Heat and Mass Transfer", 3/1/82 - 12/31/84 (with Prof. W.N. Gill).
\$124,500

Pratt and Whitney Aircraft Group, "Analysis of Rapid Solidification of Subcooled Small Metallic Drops", 9/1/81 - 6/1/82 (with Prof. W.N. Gill).
\$7,200

Electrical Power Research Institute, "Experimental/Laboratory Studies on Air Saturation and Release for Water Compensated CAES Plants", 10/13/81 - 12/31/83 (with Prof C.E.G. Lundgren).
\$128,478

National Science Foundation, "Analysis of Multiple Steady States in Natural Convection", 6/15/81 - 11/30/82 (with Prof. N.D. Kazarinoff).
\$21,363

Acres American Inc., "Champagne Effect Phenomena Evaluation in Compressed - Air Energy Storage Systems", 1/1/79 - 5/31/79.
\$6,500

National Science Foundation, "Natural Convection Flows in Water with Density Extrema Effects", 6/15/78 - 11/30/80.
\$48,251

Western Electric Co., donated bidirectional spectral reflectometer, 1977.
\$20,000

SUNY - Energy, Environmental and Resource Assistantship (CEERS), "Transport Rates, Flow and Stability Characteristics of Buoyancy - Induced Flows Affected by Density Extrema", 1975 - 1976; "Effects of Density Extrema on Natural Convection Heat and Mass Transfer", 1976 - 1977; "Effect of Density Extrema on the Onset of Transition in a Confined Horizontal Layer of Water", 1977 - 1978.
\$9,000

SUNY - Undergraduate Project for 400 level course, "Design and Evaluation of a Wollaston Prism Schlieren Interferometer", 1976 (with K. Jahn); "Flow Visualizations of Density Extrema Effects", 1977 (with J.S. Cangelosi); "An Investigation of High Temperature Solar Collector Using an Expanded Metal Foil Matrix", 1977 (with E.A. Gallion).
\$571

National Science Foundation Workshop, "Directions of Heat Transfer in Electronic Equipment", 10/17,18,19/77 (with Prof. A.D. Kraus, U. of S. Florida and Prof. A.E. Bergles, Iowa State U.).

\$9,000

National Science Foundation Instructional Scientific Equipment Program, 8/12/77 - 8/31/79 (with Prof. K.M. Kiser).

\$42,500

National Science Foundation, "The Nature of Flows and Transport from Concentrated Heat Sources on Surfaces", 12/15/76 - 5/31/78.

\$27,500

SUNY, Data Acquisition, Processing and Control System", 11/74 - 8/85 (with W.K. George, Jr.); "Heat Source on Surfaces", 1/75 - 12/76; "Heat Source on Surfaces", 4/75 - 8/76.

\$10,171

SUNY - GSA, "Experimental Study of Natural Convection from a Point Source on a Vertical Wall", 10/74 - 4/75 (with V.P.Carey). \$150

Harrison Radiator Co., donated Heat Transfer Fluids, 1974. \$800

General Electric Co., donated Heat Transfer Fluids, 1974. \$500

8. Professional Memberships and Activities:

Memberships:

Golden Key

Sigma Xi

Tau Beta Pi

Pi Tau Sigma

American Society of Mechanical Engineers

American Association for the Advancement of Science

American Institute of Aeronautics and Astronautics, Council Member Niagara Frontier Section, 1985 to 1986.

Member of ASME National Heat Transfer Division Committee, General papers, July 1, 1982 to June 30, 1985.

Member of ASME Committee K - 8, Theory and Fundamental Research in Heat Transfer, October 1975 to October 1985.

Activities:

Session Chairman for "Stability in Convective Flows Symposium", at the 106th ASME Winter Annual Meeting, Miami Beach, FL, November 18, 1985.

Session Chairman for "General Papers Session" at the 23rd National Heat Transfer Conference, Denver CO, August 1985.

Session Co - Chairman for "Mixed and Natural Convection", at the 22nd National Heat Transfer Conference and Exhibit, Niagara Falls, NY, August 7, 1984.

Session Chairman for "Natural Convection", at the 22nd National Heat Transfer Conference and Exhibit, Niagara Falls, NY, August 7, 1984.

University Liaison for ASME/AIChE 22nd National Heat Transfer Conference, Niagara Falls, NY, 1984.

Session Co - Chairman for "Heat Transfer - General Papers II", at the 104th ASME Winter Annual Meeting, Boston, MA, November 16, 1983.

Session Chairman for "General Papers - III", at the 21st National Heat Transfer Conference, Seattle, WA, July 26, 1983.

Session Chairman for "Heat Transfer with Unsteadiness or Nonuniformities", at the 103rd ASME Winter Annual Meeting, Phoenix, AZ, November 18, 1982.

Session Co - Chairman for "Two Phase Heat Transfer", at the 103rd ASME Winter Annual Meeting, Phoenix, AZ, November 17, 1982.

Session Chairman for "Fundamentals of Convective Mass Transfer", at the AIAA/ASME 3rd Joint Thermophysics and Heat Transfer Conference, St. Louis, MO, June 8, 1982.

Session Co - Chairman for "Heat Transfer and Fluid Mechanics Films", at the National Heat Transfer Conference, Orlando, FL, July, 1980.

Session Co - Chairman and Chairman for two sessions, "Developments in Natural Convection I and II" at the 19th National Heat Transfer Conference, Orlando, FL, July 1980.

Session Co - Chairman for "Heat Transfer and Fluid Mechanics Films", at the 18th National Heat Transfer Conference, San Diego, CA, August 6 - 8, 1979.

Session Co - Chairman for "Fluid Mechanics", at the 71st Annual AIChE Meeting, Miami Beach, FL, November 12 - 16, 1978.

Session Chairman for, "Stability of Buoyancy - Induced Convective Flows", at the 2nd AIAA/ASME Thermophysics and Heat Transfer Conference, Palo Alto, CA, May 24 - 26, 1978.

Session Co - Chairman for two Sessions, "Developments in natural Convection I and II", at the 16th National Heat Transfer Conference, St. Louis, MO, August 1976.

Session Chairman for an Invited Lecture at the Fifth International Heat Transfer Conference, Tokyo, Japan, September 1974.

9. Service:

Community Service:

Aero Club of Buffalo, Board of Directors, 1993 to 1994.

Amherst Museum, Aviation Board of Directors, Organized "Aviation Day", 1994.

Annual Paper Airplane Contest for High School Students, 1987, 1988, 1989, 1990 and 1991.

Career Day Speaker, "Opportunities in Aviation and Aerospace", Bishop Timon High School, February 4, 1988.

Lecture on "Balloon Dynamics", Williamsville North High School, February 3, 1988.

Luncheon Speaker, "Model Airplanes", U.S. Army Corps of Engineers, Society of American Military Engineers, April 29, 1987.

Expert Witness, "Solar Collector Story", Channel Four News.

Organized two, credit - free courses: Private Pilot Ground School and Glider Rating Ground School, Spring 1986 (For - credit, Spring 1987).

Presented seminar at "Engineering '83", National Engineers Week, Niagara Falls, February 24, 1983.

Sound technician for annual Skating Association for the Blind and Handicapped Ice Show, Buffalo Memorial Auditorium, first year 1979.

Organized "Job Workshop, Cocktail - Buffet", in cooperation with local industry, SUNYAB, March 7, 1979.

Participated in Kenmore East Senior High School Career Day, November 16, 1978.

Organized "An Engineering Vocation - An Auditorium Panel Presentation for High School Juniors", in cooperation with local industry, West Seneca High School, March 10, 1977.

University Service:

Search Committee for Associate Vice President for Research, Fall 2000-Spring 2001.

Chair, Faculty Senate Research & Creative Activity Committee, Fall 2000-Spring 2001 (conducted faculty survey <http://wings.buffalo.edu/faculty/governance/facsen/Documents/facsenreport.pdf>).

Faculty Senate Research & Creative Activity Committee, Fall 1999-Spring 2000.

Faculty Senate (elected), Fall 1999-2001.

Advisory Committee for Multidisciplinary Center for Aging, 1989-1990.

Teaching Quality Committee, Fall 1982 – Fall 1988.

Adjudication Committee, 1986 - 1991.

Academic Freedom and Responsibility Committee, 1986 - 1987.

Selection Committee for the Chancellor's Award for Teaching Excellence, 1987.

Founding member and Faculty Advisor, U.B. Flying Association, 1985-1992.

Annual Conference, Teaching Quality Subcommittee, 1984.

Conference Coordinator for "Unlocking Potentials in Classroom Teaching", Fall 1983.

Graduate School Fellowship Committee, 1981 - 1982.

Faculty Service (SEAS):

Faculty Personnel Committee (elected), Fall 1999-2000.

Member M. ENG. Committee, 1989-1990.

Harrison Radiator Coop Committee, 1984 - 1988.

Chairman, Academic Programs Undergraduate Subcommittee, 1983 - 1988.

Academic Programs Committee, 1983 - 1988.

Student Affairs Committee, 1978 - 1979.

Physics Course Review Committee, Fall 1978

Academic Programs Committee, Spring 1978.

Search Committee for M.E. Chairman, 1976.

Department Service:

Member Undergraduate Studies Committee, Fall 1997-present.

Director of Undergraduate Studies, Fall 1983 - Fall 1988.

Advisor AIAA student section, Fall 1983 - Fall 1985.

Co - organized MEA Departmental Seminar Series, 1983 - 1984.

Undergraduate Curriculum Committee, Spring 1983.

Advisor of Mechanical and Aerospace Engineering Graduate Student Association, Fall 1982, Spring 1983.

Taught construction techniques and organized and directed model airplane contest for ASE/MEA 331, Introduction to Aerospace Engineering, Fall 1982, Fall 1983.

Arranged a special joint seminar with Physiology, "The problem of the problem: sources of originality in art and science", by Jacob W. Getzels, R. Wendell Harrison Distinguished Service Professor, U. Chicago, December 11, Fall, 1981.

Space Allocations Committee, Spring 1980.

Organized M.E. Departmental Seminar Series, 1978 - 1979.

Master - User for M.E. Computer Allocations, 1977 - 1978, 1978 - 1979.

Faculty Recruitment Committee, 1977 - 1978.

Chairman, Committee on Engineering Representation and Graphics Course", 1977 - 1978.

Faculty Advisor: ASME Student Chapter, September 1975 - September 1979.

Faculty Advisor: Pi Tau Sigma, April 1975 - September 1979.

10. Publications:

Refereed Journals:

Gebhart, B. and J. Mollendorf, "Viscous Dissipation in External Natural Convection Flows", Journal of Fluid Mechanics, Vol. 38, pp. 97 - 107, 1969.

Mollendorf, J.C. and B. Gebhart, "An Experimental Study of Vigorous Transient Natural Convection", Journal of Heat Transfer, Trans. ASME, Vol. 92, pp. 628 - 634, 1970.

Mollendorf, J.C. and B. Gebhart, "Thermal Buoyancy in Round Laminar Vertical Jets", International Journal of Heat and Mass Transfer, Vol. 16, pp. 735 - 745, 1973.

Mollendorf, J.C. and B. Gebhart, "An Experimental and Numerical Study of the Viscous Stability of a Round Laminar Vertical Jet With and Without Thermal Buoyancy for Symmetric and Asymmetric Disturbances", Journal of Fluid Mechanics, Vol. 61, pp. 367 - 399, 1973.

Mollendorf, J.C., "The Applicability of Approximate and Exact Transient Heat Transfer Analysis to Heating Processes Used to Solder Multilayer Circuit Boards", IEEE Transactions on PHP, Vol. 11, pp. 96 - 104, 1975.

Gebhart, B. and J.C. Mollendorf, "A New Density Relation for Pure and Saline Water", Deep Sea Research, Vol. 24, pp. 831 - 848, 1977; see also Vol. 25, pp. 503 - 505, 1978.

Carey, V.P. and J.C. Mollendorf, "The Temperature Field Above a Concentrated Heat Source on a Vertical Adiabatic Surface", International Journal of Heat and Mass Transfer, Vol. 20, pp. 1059 - 1067, 1977.

Mercier, R.J., S. Malkin and J.C. Mollendorf, "Thermal Stresses from a Moving Band Source of Heat on the Surface of a Semi - Infinite Solid", Journal of Engineering for Industry, Trans. ASME, Vol. 100, pp. 43 - 48, 1978.

Carey, V.P. and J.C. Mollendorf, "Measured Variation of Thermal Boundary Layer Thickness with Prandtl Number for Laminar Natural Convection from a Vertical Uniform - Heat - Flux Surface", International Journal of Heat and Mass Transfer, Vol. 21, pp. 481 - 488, 1978.

Gebhart, B. and J.C. Mollendorf, "Buoyancy - Induced Flows in a Liquid Under Conditions in Which Density Extrema May Arise", Journal of Fluid Mechanics, Vol. 89, pp. 673 - 707, 1978.

Mollendorf, J.C. and T. - Y. Chu, "Transient Film Condensation on Upward - Facing Horizontal Surfaces", Chem. Eng. Commun., Vol. 3, pp. 175 - 188, 1979.

Gebhart, B., V.P. Carey and J.C. Mollendorf, "Buoyancy - Induced Flows Due to Energy Sources in Cold Quiescent Pure and Saline Water", Chem. Eng. Commun., Vol. 3, pp. 555 - 575, 1979.

Carey, V.P., B. Gebhart and J.C. Mollendorf, "Buoyancy Force Reversals in Vertical Natural Convection Flows in Cold Water", Journal of Fluid Mechanics, Vol. 97, pp. 279 - 297, 1980.

Carey, V.P. and J.C. Mollendorf, "Variable Viscosity Effects in Several Natural Convection Flows", International Journal of Heat and Mass Transfer, Vol. 23, pp. 95 - 109, 1980.

Mollendorf, J.C., R.S. Johnson and B. Gebhart, "Several Constant Buoyancy Plume Flows in Pure and Saline Water at its Density Extreme", Journal of Fluid Mechanics, Vol. 113, pp. 269 - 282, 1981.

Gill, W.N., J. - Y. Jang and J.C. Mollendorf, "Rapid Solidification of Subcooled Small Metallic Drops", Chem. Eng. Commun., Vol. 12, pp. 3 - 31, 1981.

El - Henawy, I., B. Gebhart, B. Hassard, N. K and J.C. Mollendorf, "Numerically Computed Multiple Steady States of Vertical Buoyancy Induced Flows in Cold Pure Water", Journal of Fluid Mechanics, Vol. 122, pp. 235 - 250, 1982.

Mollendorf, J.C. and K.H. Jahn, "Onset of Convection in a Horizontal Layer of Cold Water", Journal of Heat Transfer, Trans. ASME, Vol. 105, pp. 460 - 464, 1983.

Jahn, K.H. and J.C. Mollendorf, "The Wollaston - Prism Schlieren Interferometer - - New Results and Past Controversies Revealed and Resolved", accepted, Chem. Eng. Commun.

Mollendorf, J.C., E.B. Ajiniran and H. Arif, "Developing Flow and Transport Above a Suddenly Heated Horizontal Surface in Cold Water", Int. J. Heat and Mass Transfer, Vol. 27, pp. 273 - 289, 1984.

Johnson, R.S. and J.C. Mollendorf, "Transport from a Vertical Ice Surface Melting in Saline Water", *Int. J. Heat and Mass Transfer*, Vol. 27, pp. 1928 - 1932, 1984.

Padlog, R.D. and J.C. Mollendorf, "Variable Fluid Property Effects on Transport in Pure Water Around the Density Extremum", *Journal of Heat Transfer*, Vol. 105, pp. 655 - 658, 1983.

Hwang, L. - T., W. - F. Lu, and J.C. Mollendorf, "The Effects of the Density Extremum and Boundary Conditions on the Stability of a Horizontally Confined Water Layer", *Int. J. Heat and Mass Transfer*, Vol. 27, pp. 497 - 510, 1984.

Gill, W.N., J. - Y. Jang, J.C. Mollendorf and C.M. Adam, "Freezing of Small Subcooled Metallic Spheres - Internal Nucleation", *J. Crystal Growth*, Vol. 66, pp. 351 - 368, 1984.

Kukulka, D.J., B. Gebhart and J.C. Mollendorf, "Thermodynamic and Transport Properties of Pure and Saline Water", *Advances in Heat Transfer*, Vol. 18, pp. 325 - 363, 1987.

Hamouda, H. and J.C. Mollendorf, "Stability Analysis of a Growing Horizontal Thermal Layer Subject to Sudden Bottom Heating," *International Journal of Heat & Mass Transfer*, Vol. 34, 1991.

Benzoni, A., D.J. Kukulka, and J.C. Mollendorf, "Digital Simulation of a Pneumatic Pressure Regulator," *Simulation* 63, 1994.

Kukulka, D.J., J. Lamb, and J.C. Mollendorf, "Thermal Stratification Effects Near a Vertical Ice Slab in Cold Water," *Journal of Thermophysics and Heat Transfer*, 9, 1995.

Catipovic, R.M., Tittle, L.A., and Mollendorf, J.C., "A New Cervical-Thoracic Orthosis: Clinical Report of Seven Cases", *J. Prosthetics and Orthotics* 10, 2, 33-36, 1998.

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

Blekhman DI, JC Mollendorf, JD Felske and JA Lordi, "Analysis of High-Pressure-Ratio Root's Type Compressor Producing a Very High-Temperature Outlet Gas Stream", *International Journal of Transport Phenomena*, (2002) 4: 275-284.

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

Pendergast D.R., J.C. Mollendorf, C. Logue and S. Samimy, "Evaluation of Fins Used in Underwater Swimming", *J Undersea and Hyperbaric Medicine*, 30, 1 , 75-85, 2003.

Pendergast D.R., J.C. Mollendorf, C. Logue and S. Samimy, "Underwater Fin Swimming in Women with Reference to Fin Selection", *J Undersea and Hyperbaric Medicine*, 30, 1, 57-73, 2003.

Pendergast D, P Zamparo, PE di Prampero, C Capelli, P Cerretelli, A Termin, A Craig Jr, D Bushnell, D Paschke, J Mollendorf. Energy balance of human locomotion in water. *E J Appl Physiol*. 90: 377-386, 2003.

Mollendorf JC, AC Termin,II, E Oppenheim, DR Pendergast. Effect of swim suit design on passive drag. *J Med Sci Sports & Exerc*. 36:1, 1-7, June 2004.

Blekhman DI, JC Mollendorf, JD Felske and JA 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.

Samimy S., JC Mollendorf and DR Pendergast, "A Theoretical and Experimental Analysis of Diver Technique in Underwater Fin Swimming", *J Sports Engineering*, (2005).8:27-38

Pendergast DR, Mollendorf JC, Zamparo P, Termin A, Bushnell D and Paschke D, "The Influence of Drag on Human Locomotion in Water", *J Undersea and Hyperbaric Medicine*, 32(1):45-47, 2005.

Blekhman, DI, Mollendorf, JC; Felske, JD, Lordi, JA, Joshi, "A Roots Compressor: High Temperature Testing and Modeling", *ASME Process Industries Division* (2004) 9: 43-58

Zamparo, P, DR Pendergast, JC Mollendorf, B Termin and AE Minetti, "An Energy Balance of Front Crawl", *Eur J Appl Physiol* (2005), 94:134-144

Bardy, E, JC Mollendorf and DR Pendergast, "Thermal conductivity and compressive strain of foam neoprene insulation under hydrostatic pressure", *J Phys D: Appl Phys* 38 (2005) 3832-3840

Bardy, E, JC Mollendorf and DR Pendergast, "Thermal resistance and compressive strain of underwater aerogel-syntactic foam hybrid insulation at

atmospheric and elevated hydrostatic pressure", J Phys D: Appl Phys 39 (2006) 1908-1918

Refereed Conference Papers:

Mollendorf, J.C. and B. Gebhart, "Transition and Relaminarization in an External Natural Convection Flow", ASME - AIChE 11th National Heat Transfer Conference, ASME paper #69 - HT - 11, Minneapolis, August 1969.

Mollendorf, J.C. and B. Gebhart, "Axisymmetric Natural Convection Flows Resulting from the Combined Buoyancy Effects of Thermal and Mass Diffusion", Proceedings of the Fifth International Heat Transfer Conference, Vol. 5, pp. 10 - 14, Keidanran - Kaikan, Tokyo, Japan, September 1974.

Mollendorf, J.C. and T. - Y. Chu, "Transient Film Condensation on Finite Horizontal Surfaces with Run - Off", ASME National Heat Transfer Conference, Paper 75 - HT - 16, San Francisco, August 11 - 13, 1975.

Mercier, R.J., S. Malkin and J.C. Mollendorf, "Thermal Stresses from a Moving Band Source of Heat on the Surface of a Semi - Infinite Solid", ASME Winter Annual Meeting, Paper 77 - WA/PROD - 26, Atlanta, GA, November 27 - December 2, 1977.

Carey, V.P. and J.C. Mollendorf, "Natural Convection in Liquids with Temperature Dependent Viscosity", Proceedings of the Sixth International Heat Transfer Conference, Vol. 5, pp. 211 - 216, Toronto, Ontario, Canada, August 7 - 11, 1978.

Mollendorf, J.C. and B. Gebhart, "Relaminarization in External Natural Convection Flows", ASME - AIChE 18th National Heat Transfer Conference, Film, San Diego, August 6 - 8, 1979.

Arif, H. and J.C. Mollendorf, "Development of Convection Above a Heated Horizontal Surface in an Extensive Fluid", AIChE/ASME 19th National Heat Transfer Conference Film, Orlando, July 27 - 30, 1980.

Kukulka, D.J. and J.C. Mollendorf, "An Experimental Study of Transient Transport Near a Heated Horizontal Surface", accepted for the First World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics, Dubrovnik, Yugoslavia, September, 1988.

D.J. Kukulka and J.C. Mollendorf, "Calculated Values of Sound Speed, Adiabatic Lapse Rate, Potential Temperature and Isothermal Compressibility for Pure and Saline Water," CSME Mechanical Engineering Forum 1990, Toronto Canada, 1990.

J.C. Mollendorf, H.L. Relation, and R.C. Pfahl, "Transient Response of Two Low Bio Number Masses Connected by a Thermal Resistance," First International Conference Transport Phenomena in Processing, Honolulu, Hawaii, 1992.

D.J. Kukulka, J. Lamb, and J.C. Mollendorf, "Thermo Stratification Effects Near a Vertical Ice/Slab in Cold Water," 1993 National Heat Transfer Conference, Atlanta, GA, 1993.

D.J. Kukulka, A. Poopisut, and J.C. Mollendorf, "Development of Planar Flow Casting Transport Relations," 2nd European Thermal - Sciences and 14th VIT National Heat Transfer Conference, Rome, 1996.

D.J. Kukulka and J.C. Mollendorf, "Calculated Properties of Pure and Saline Water Near the Temperature of Maximum Density," Proceedings of the 5th International Symposium on Thermo Engineering and Sciences for Cold Regions, Ottawa, Canada, 1996.

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", 8th International Symposium On Transport Phenomena and Dynamics of Rotating Machinery, Honolulu, Hawaii, March 26-30, 2000.

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", 9th International Symposium On Transport Phenomena and Dynamics of Rotating Machinery, Honolulu, Hawaii, February 10-14, 2002.

Bardy E, Mollendorf J, Janish J, Buchner R, Stimson E, Pendergast DR. Development and testing of thermal insulation. Undersea Hyperbaric Medical Society Meeting, Sydney Australia, May 2004.

Balikowski J, Mollendorf J, Buchner R, Pendergast DR. Application of a fuel cell to heat and cool divers. Undersea Hyperbaric Medical Society Meeting, Sydney Australia, May 2004.

Pendergast DR, Mollendorf J, Janish J, Stimpson E, Fletcher M. Total body zoned cooling and heating suit for divers. Undersea Hyperbaric Medical Society Meeting, Sydney Australia, May 2004.

Pendergast DR and JC Mollendorf, "Thermal protection of divers in hot and cold water", Undersea and Hyperbaric Medical Society Meeting, Las Vegas, Nevada, June 2005

D.R. Pendergast, C. Capelli, A.B. Craig Jr., P.E. di Prampero, A.E. Minetti, J. Mollendorf, A. Termin II, P. Zamparo, "Biophysics of Swimming" J.P. Vilas-

Boas, F. Alves, A. Marques (eds.), Book of Abstracts of the Xth International Symposium Biomechanics and Medicine in Swimming. Portuguese Journal of Sport Sciences, Suppl 1, 2006

Book Chapters:

Enderle, JD, Editor, “National Science Foundation 1990 Engineering Senior Design Projects to Aid the Disabled”, chapter 11, pp. 175-201, see also <http://nsf-pad.bme.uconn.edu/1990/chapter11.pdf> .

Enderle, JD, Editor, “National Science Foundation 1991 Engineering Senior Design Projects to Aid the Disabled”, chapter 9, pp. 103-119 http://nsf-pad.bme.uconn.edu/1991/chapter_9.pdf .

Enderle, JD, Editor, “National Science Foundation 1992 Engineering Senior Design Projects to Aid the Disabled”, chapter 10, pp. 123-145 http://nsf-pad.bme.uconn.edu/1992/chapter_10.pdf .

Enderle, JD, Editor, “National Science Foundation 1993 Engineering Senior Design Projects to Aid the Disabled”, chapter 7, pp. 82-99 http://nsf-pad.bme.uconn.edu/1993/chapter_7.pdf .

Enderle, JD, Editor, “National Science Foundation 1994 Engineering Senior Design Projects to Aid the Disabled”, chapter 8, pp. 64-83 http://nsf-pad.bme.uconn.edu/1994/chapter_8.pdf .

Enderle, JD, Editor, “National Science Foundation 1995 Engineering Senior Design Projects to Aid the Disabled”, chapter 8, pp. 105-133 http://nsf-pad.bme.uconn.edu/1994/chapter_8.pdf .

Enderle, JD and B Hallowell, Editors, “National Science Foundation 1996 Engineering Senior Design Projects to Aid the Disabled”, chapter 7, pp. 97-139 <http://nsf-pad.bme.uconn.edu/1996/Chapter%207.pdf> .

Enderle, JD and B Hallowell, Editors, “National Science Foundation 1997 Engineering Senior Design Projects to Aid the Disabled”, chapter 11, pp. 133-173 <http://nsf-pad.bme.uconn.edu/1997/1997%20Chapter%2011.pdf> .

Enderle, JD and B Hallowell, Editors, “National Science Foundation 1998 Engineering Senior Design Projects to Aid the Disabled”, chapter 13, pp. 141-171 <http://nsf-pad.bme.uconn.edu/> .

Enderle, JD and B Hallowell, Editors, “National Science Foundation 1999 Engineering Senior Design Projects to Aid the Disabled”, chapter 14, pp. 151-179 <http://nsf-pad.bme.uconn.edu/> .

Enderle, JD and B Hallowell, Editors, "National Science Foundation 2000 Engineering Senior Design Projects to Aid the Disabled", chapter 13, pp. 155-189 <http://nsf-pad.bme.uconn.edu/> .

Enderle, JD and B Hallowell, Editors, "National Science Foundation 2001 Engineering Senior Design Projects to Aid the Disabled", chapter 13, pp. 137-168 <http://nsf-pad.bme.uconn.edu/> .

Enderle, JD and B Hallowell, Editors, "National Science Foundation 2002 Engineering Senior Design Projects to Aid the Disabled", chapter 12, pp. 117-145 <http://nsf-pad.bme.uconn.edu/>.

Enderle, JD and B Hallowell, Editors, "National Science Foundation 2003 Engineering Senior Design Projects to Aid the Disabled", chapter 11, pp. 131-177 <http://nsf-pad.bme.uconn.edu/>, appeared in 2005

Enderle, JD and B Hallowell, Editors, "National Science Foundation 2004 Engineering Senior Design Projects to Aid the Disabled", chapter 13, pp. 165-201 <http://nsf-pad.bme.uconn.edu/>, appeared in 2006

D.R. Pendergast, C. Capelli, A.B. Craig Jr., P.E. di Prampero, A.E. Minetti, J. Mollendorf, A. Termin II, P. Zamparo, "Biophysics of swimming". In: Swimming dicine X. J.P. Vilas-Boas, F. Alves, A. Marques (eds.), Biomechanics and Medicine in Swimming X. Portuguese Journal of Sport Sciences, Suppl 2, 2006

Conference papers (refereed abstract only):

Chu, T. - Y., J.C. Mollendorf and R.C. Pfahl, Jr., "A New Mass Soldering Process: Condensation Soldering", Proceedings of the National Electronic Packaging and Production Conference, pp. 101 - 104, Anaheim, February 1974.

Pfahl, R.C., Jr., J.C. Mollendorf and T. - Y. Chu, "Condensation Soldering", American Welding Society Conference, Houston, May 1974.

Mollendorf, J.C., T. - Y. Chu and R.C. Pfahl, Jr., "A New Mass Soldering Process: Condensation Soldering", NEPCON East, NY, June 1974.

Chu T. - Y., J.C. Mollendorf and R.C. Pfahl, Jr., "A New Mass Soldering Process: Condensation Soldering", Proceedings of the Technical Programme, Internepcon, pp. 123 - 128, Brighton, England, October 1974.

Gill, W.N. and J.C. Mollendorf, "Simultaneous Heat and Mass Transfer in Ice Crystal Growth from Solution", AIChE 73rd Annual Meeting, Chicago, November, 1980.

Lundgren, C.E.G., J.C. Mollendorf, A.H. Qureshi and T.L. Urso, "Factors Influencing Air Absorption and Release in Water Within the 1 - 70 atm Range", AIAA/EPRI International Conference on Underground Pumped Hydro and Compressed Air Energy Storage, San Francisco, September 22, 1982.

Mollendorf, J.D., D.M. Moscaritollo and D. Hickey, "Transient Pressure Response of the Gaseous Contents of a Thin - Walled, Spherical Pressure Vessel to Externally Varying Pressure", 23 Annual Meeting of the Society of Engineering Science, Buffalo, NY, August 1986.

Pendergast DR, A.C. Termin II, and J Mollendorf, "Effect of Swim Suit Design on Drag", American College of Sports Medicine, Baltimore MD, 4/2000.

Other publications (not refereed - excluding company reports):

Mollendorf, J.C., "The Effect of Thermal Buoyancy on the Hydrodynamic Stability of a Round, Laminar, Vertical Jet", Ph.D. thesis, Cornell Univ., Ithaca, NY, 130 pages, 1971.

Chu, T. - Y., J.C. Mollendorf and R.C. Pfahl, Jr., "Soldering by Condensation Heat Transfer", Western Electric Eng. Res. Cent. T.N., Vol. 7, No. 3, pp. 6,7 and 11, 1973.

Chu, T. - Y., J.C. Mollendorf and G.M. Wenger, "Condensation Soldering: A New Mass Soldering Process", Western Electric Engineer, Vol. XIX, No. 2, cover and pp. 24 - 30, April 1975.

Pfahl, R.C., Jr., J.C. Mollendorf and T. - Y. Chu, "Condensation Soldering", Welding Journal, Vol. 54(1), pp. 22 - 25, January 1975.

Kraus, A.D., A.E. Bergles and J.C. Mollendorf, "Directions of Heat Transfer in Electronic Equipment", Report of Research Workshop, NSF Grant ENG - 7701297, 144 pages, 1978.

Invited member of "Melting and Solidification" and "Transition and Turbulence Modeling" groups at the NSF/Notre Dame Natural Convection Workshop, Breckenridge, Colorado, July 18 - 21, 1982.

Invited Seminars:

"The Effect of Thermal Buoyancy on the Stability of Laminar Jets" Mech. Engr. Cornell Univ., Ithaca, NY, October, 1971.

"A Comparison of Convective Heating Processes Used to Solder Multi - layer Boards", Western Electric Engineering Research Center, Princeton, NJ, Spring 1972.

"Stability and Relaminarization in Buoyancy Driven Flows", Mech. Engr., State University of New York, Buffalo, NY, October 18, 1973.

"Stability of Round Laminar Vertical Jets with Buoyancy and Vigorous Transient Natural Convection Flows with Relaminarization", Centre National de la Recherche Scientifique, Laboratoire D/Aerothermique, Paris, France, September 18, 1973.

"Axisymmetric Plume Flows", Institut de Mechanique des Fluides, Universite D/Aix - Marseille, Marseille, France, September 28, 1973.

"Condensation Soldering", Dept. of Mechanical and Metallurgical Engineering, Oregon State University, Corvallis, Oregon, March 1974.

"Transient Film Condensation on Finite Horizontal Surfaces with Run - Off", Dept. of Mech. and Aero Engr., Cornell Univ., Ithaca, NY, April 29, 1975.

"Numerical Heat Transfer Calculations in Water Near its Density Extremum", Dept. of Geological Sciences, State University of New York at Buffalo, NY, October 28, 1976.

"A New Equation of State and Density Extrema Effects on Flow and Transport in Water", Dept. of Mechanical and Industrial Engineering, Clarkson College, Potsdam, NY, March 3, 1977.

"Density Extrema Effects on Buoyancy - Induced Flow and Transport in Water", Dept. of Eng. Sci., Aero Eng. and Nuc. Eng., State University of New York, Buffalo, NY, March 25, 1977.

"Flow and Natural Convection in Water Near its Maximum Density", Carrier Corp., Syracuse, NY, May 23, 1977.

"A New Density Relation and Transport Effects in Saline Water", M.E. Dept., SUNYAB,
September 29, 1977.

"Transport from Horizontal Surfaces in Cold Stratified Water", Office of Naval Research, Arlington, VA, October 25, 1977.

"Analysis of a Concentrating Solar Collector - or - An Example of How to Use What You Learn in Class", Lecture Series for Freshman Students - EAS 101: Topics in Engineering and Applied Science, SUNYAB, December 8, 1977.

"Buoyancy - Induced Flow and Transport in Cold Water", Dept. of Mechanical Engineering, Univ. of Waterloo, Waterloo, Ontario, Canada, February 9, 1978.

"Transient Film Condensation on Finite Horizontal Surfaces with Run - Off", EG & G, Idaho Falls, Idaho, March 27, 1978.

"A New Equation of State and Low Temperature Transport in Water", Univ. of Washington, Seattle, 3/28/78; Oregon State Univ., March 29, 1978; Univ. of Alberta, Edmonton, March 30, 1978.

"Design of a Concentrating Solar Collector", College of Mathematical Sciences, SUNYAB, November 15, 1978.

"Convective Losses from Central Solar Receivers", invited panelist, DOE/Sandia, Dublin, CA, April 17 - 18, 1979.

"What Do Engineers Do?", College of Mathematical Sciences, April 24, 1979.

"Champagne Effect Phenomena Evaluation in Compressed - Air Energy Storage Systems", Potomac Electric Power Co., June 6, 1979.

"Advice to College - Bound High School Seniors", Keynote talk at Rotary's Annual Scholarship Dinner, Clyde, NY, June 7, 1979.

"An Air Bubble Rising in Water", Math. Dept., SUNYAB, October 3, 1979.

"Development of Convection with Boundary Thermal Capacity and Density Extrema Effects in Confined and Extensive Horizontal Layers of Water", Univ. of Missouri - Rolla, October 15, 1981.

"Departure from Equilibrium: Ice Crystal Growth, Powder Metallurgy, Melting Ice, Thermal Instability and Bubble Formation", M.E.A. Dept., SUNYAB, November 12, 1981 26.

"Model Airplanes", Buffalo Section Chapter AIAA, 1981.

"Departure from Equilibrium: Ice Crystal Growth, Powder Metallurgy Melting Ice, Thermal Instability and Bubble Formation", M.E.A. Dept. of U. of Delaware, April 23, 1982.

"Transient Free Convection Phenomena", Mechanical Engineering Thermoscience, Stanford Univ., CA, September 20, 1982.

"Motion in Cold Water Heated from Below", Dept. of Mechanical Engineering, U. of Calif., Berkeley, September 21, 1982.

"Motion in Cold Water Heated from Below", Dept. of Mechanical Engineering, U. of Penn, Philadelphia, October 27, 1982.

"Motion in Cold Water Heated from Below", CREST, SUNYAB, December 8, 1983.

"Effect of Stirring on Bubble Formation During Decompression", Dept. of Physiology, SUNYAB, February 9, 1983.

"Factors Influencing Air Absorption and Release in Water Within the 1 - 70 Atm. Range", In vitro bubble research: theories and experiments Symposium/Workshop, SUNYAB, September 30, 1983.

"Soaring - Thru Space", Amelia Earhart Program Speaker, Zonta Club of Buffalo, Buffalo Convention Center, January 3, 1984.

"Design and Construction of the U.B. Ultralight Aircraft", Niagara Frontier Chapter 46, Experimental Aircraft Association, January 10, 1985.

"U.B. Ultralight World Altitude Attempt", Niagara Falls Composite Squadron Civil Air Patrol, March 15, 1985.

"Heat Transfer and Fluid Flow Above a Suddenly - Heated Horizontal Surface in an Extensive Ambient", Penn State Univ., April 25, 1985.

"Role of University - Based Engineering R&D in Providing Access - To - Technology," Technology Access for Persons with Disabilities, Buffalo, NY, 1989.

"Industrial vs. Academic Career," Student Section ASME, State University of New York at Buffalo, Buffalo, NY, 1990.

"Assistive Technology," Department of Rehabilitation Medicine, ECMC, 1992.

"Assistive Device Design", University of Hawaii at Manoa, Oahu, March 2000.

"Fluid Mechanics of Swim Fins", University at Udine, Medical School, Udine, Italy, March 2001.

"A Fluid / Solid Model for Predicting Slender Body Deflection in a Moving Fluid", Cornell University, Ithaca, NY, April 2, 2002.

"A Fluid / Solid Model for Predicting Slender Body Deflection in a Moving Fluid", University of Minnesota, Minneapolis, MN, September 11, 2002.

"A Fluid / Solid Model for Predicting Slender Body Deflection in a Moving Fluid", University of Toronto, Toronto, ONT, December 6, 2002.

“A Fluid / Solid Model for Predicting Slender Body Deflection in a Moving Fluid”, University of Southern California, Los Angeles, CA, February 20, 2003.

“A Fluid / Solid Model for Predicting Slender Body Deflection in a Moving Fluid”, Lehigh University, Bethlehem, PA, October 28, 2005

“A Fluid / Solid Model for Predicting Slender Body Deflection in a Moving Fluid”, University of Pittsburgh, Pittsburgh, PA, February 24, 2006