RESUME

Charles Alexander Garris, Jr.

OFFICE ADDRESS:

Department of Mechanical and Aerospace Engineering
The School of Engineering and Applied Science
800 22nd Street NW, Suite 3000
Washington, D. C. 20052
Tel: 202-994-3646
FAX: 202-994-0238
E-MAIL: garris@.gwu.edu

EDUCATION:

B.Engr.(Marine); State University of New York, Maritime College; 1965

M. S. (Mechanical Engineering), 1968
State University of New York at Stony Brook

Ph.D. (Mechanical Engineering), 1971
State University of New York at Stony Brook

Twenty-Four credits toward MBA, 1986-88
The George Washington University

PROFESSIONAL EMPLOYMENT HISTORY:

The George Washington University
The Department of Mechanical and Aerospace Engineering

1984-Present	Professor of Mechanical & Aerospace Engineering
1978-84	Associate Professor of Engineering

The Department of Civil and Environmental Engineering

2003-2004	Interim Department Chairman

National Science Foundation
Division of Chemical and Thermal Systems

1988-89	Program Director of Heat Transfer & Energy Systems (GW Leave)
1990-2002	Program Director of Interfacial, Transport, and Thermodynamics (part-time & summers)
2009-2010	Expert, Division of Chemical, Bioengineering, Environmental, and Transport Systems (CBET), Engineering Directorate

Instituto Venezolano de Investigaciones Cientificas (IVIC)

Centro de Ingenieria

1971-73 &1976-78 Chief of Mechanical Engineering, Scientist

Massachusetts Institute of Technology

Department of Mechanical Engineering

1973-76 Research Associate, Department of Mechanical Engineering

Universidad Central de Venezuela

Escuela de Ingenieria

1976-78, 71-73 Associate Professor (Adjunct)

Universidad Simon Bolivar

1976-78 Associate Professor (Adjunct)

Naval Plant Representative Office, United Technologies, E. Hartford

1974-76 Senior Scientist (Part-time)

State University of New York at Stony Brook

Department of Mechanical Engineering

1966-71 Teaching Assistant, Department of Mechanics

Sea-Land Service, Inc.

1966 Third Assistant Engineer, S. S. Gateway City

PROFESSIONAL SOCIETIES

American Society of Mechanical Engineers - Fellow

(Elected Chairman of Propulsion Technical Committee, 1989)

(Member Heat Transfer Technical Committee, 1988-94)

National Academy of Inventors - Fellow

American Institute of Aeronautics and Astronautics - Associate Fellow

American Intellectual Property Law Association - Member

Sigma Xi - Member
President of GW Chapter 1991-92, served as VP & Secretary/Treasurer
American Society of Engineering Education - Member
Pi Tau Sigma - Member

HONORS

Faculty Senate Resolution 17/5: A RESOLUTION OF APPRECIATION FOR PROFESSOR CHARLES A. GARRIS, voted on and approved unanimously by the Faculty Senate of the George Washington University, April 7, 2017.
RESOLUTION TO RECOGNIZE PROFESSOR CHARLES GARRIS: "Resolved that the Board of Trustees of The George Washington University expressed to Professor Charles Garris its deepest appreciation and gratitude for his long and distinguished service . . ." Voted on and approved unanimously by the Board of Trustees, May 19, 2017.
Elected Fellow of the National Academy of Inventors
Elected Fellow of the American Society of Mechanical Engineers
Elected Associate Fellow of the American Institute of Aeronautics and Astronautics
Thomas Edison Patent Award of the American Society of Mechanical Engineers. 2006
Best Paper Award: (w. K.Bulusu & D. Gould); ASME Symposium on Advanced Energy Systems; IMECE2008; "Evaluation of Efficiency in Compressible Flow Ejectors." Boston, MA, 2008.
2011 George Washington University Trachtenberg Prize for University Service.

OTHER PROFESSIONAL ACTIVITIES

Panelist for NSF for proposals, Presidential Young Investigator Awards, Research Initiation Grants, Equipment Grants, etc.
Panelist for United States Agency for International Development
1987-present (Annual proposal review).
Panelist for the Environmental Protection Agency, Graduate Fellowship Program
Frequent panelist for DOE, AFOSR, etc.
Frequent Reviewer of proposals.
Reviewer for various technical journals.
Research Science Institute Mentor, 1985-90.
Technical Committee of 1992 International Power Engineering Conference
Scientific Advisory Committee, XXII International Symposium on Manufacturing and Materials Processing.
Fulbright Scholarship Award Committee, 1991, 1992, 1993, 1994.
Host for NSF Workshop on "High Performance Computing Applications in Chemical and Thermal Systems", June 4, 1993.
Session Chair, Second U. S. National Congress on Computational Mechanics, Washington, DC, August 16-18, 1993.

Invited Participant in Brookings Institution Workshop on US/Japan Scientific and Technological Cooperation, Washington DC, Feb. 18, 1994.

Invited Panelist, IEEE-USA 1994 National Forum:"Engineering, Enterprises, and National Priorities: Changing Environments and Roles.", December 12-13, 1994, Johns Hopkins University.

Invited Lecture, "Recent Developments in Fuel Cell Research", presented at the American Physical Society Symposium on "Advances in Alternative Energy", Rochester Institute of Technology, October 13, 1995.

Invited participant in Vice President's 6th PNGV Symposium, Four Stroke Direct Injection Engines", White House Conference Center, July 22-23, 1997.

Invited Panelist. Department of Energy Panelist on "Turbo-expanders Research and Development in Fuel Cell Systems", October 12-14, 1999, Detroit, MI.

External Reviewer for Tulane University Strategic Research Initiative, January 2001.

Interviewed by Nature Magazine for and Article: Powell, K.: "Patent Office Plan to Beat its Backlog Elicits Cool Response"; Nature, v419, Sept.12, 2002.

PATENTS

1. Garris, C. A.: Valve Control.Patent Number 4,875,623. Oct. 24, 1989.
2. Garris, C. A.: Valve Control. Patent Number 4,969,598, Nov. 13, 1990.
3. Garris, C. A.: A Pressure Exchanging Ejector and Refrigeration Apparatus, Patent Number 5,647,221, July 15, 1997.
4. Garris, C. A.: Pressure Exchanging Ejector and Methods of Use, Patent Number 6,138,456, October 31, 2000.
5. Garris, C. A.: Pressure Exchanging Compressor-Expander and Methods of Use, 6,434,943, August 20, 2002.
6. Garris, C. A.: Fuel Cell Pressurization System, Patent Number 6,663,991, December 16, 2003.
7. Garris, C. A.: Pressure-Exchanging Ejector and Methods of Use, Patent Number 7,497,666, March 3, 2009.

LICENSES

Patent Agent: Licensed by the U. S. Patent and Trademark Office (Reg. No. 45,346)

Professional Engineer, Virginia.

U. S. Coast Guard License: "Third Assistant Engineer of Steam and Motor Vessels; Unlimited Horsepower". (Not currently active).

ADMINISTRATION AND SERVICE

The George Washington University

University

University Marshall 2014-2017.
Elected Chair of Faculty Senate Executive Committee, 2014-2017.
Member of GW Presidential Search Committee, 2016-2017.
Member Faculty Senate Committee on Professional Ethics and Academic Freedom
Appointed member of the Science & Engineering Complex Core Instrumentation Committee, 2011-2012.
Elected SEAS Representative to the Faculty Senate, 2002-2017, 2019-Present.
Chair of the Senate Committee on Professional Ethics and Academic Freedom, 2007-2014.
Chair PEAF subcommittee on GW Policy on Intellectual Property, 2012-2014
Chair PEAF subcommittee on GW Policy on Sexual Harassment and Sexual Assault
Member of Advisory Counsel on Research 2010-2013.
Elected member of the Faculty Senate Executive Committee, 2004-2007, 2010-2011, 2011-2012, 2012-2013.
Elected SEAS representative of the Presidential Search Consultative Committee, 2006-07.
Member of the Intellectual Property Review Panel, 2003-2010.
Chair of the Senate Committee on Appointment, Salary, and Promotion, 2003-2004.
Member of the Senate Committee on Fiscal Planning and Budgeting, 1992-1999; 2003-2004.
Appointed by Senate to the Vice President's Task Force on Post-Tenure Review 1991-1992.
Chairman of Senate Committee on Research, 1985-89.
Ex-Officio member of Senate Committee on Research, 1989-92.
Member of University Committee on Research, 1985-Present
Member of Advisory Council on Research, 1989-90, 1992-98.
Member of Middlestates Self Study Committee on Research, 1987-88
Elected to Senate Executive Committee 1988-1992.
Commissioned by President Trachtenberg for a study on faculty productivity and teaching loads. Report presented to President 4/91.
Member Joint Committee on the Virginia Campus 1994.

School of Engineering and Applied Science

Elected Member of the School of Engineering Dean Search Committee, 2018-2019.
Chair of Committee on Revision of By-Laws of the School of Engineeing and Applied Science, 2018-2019.
Member SEAS Conflict of Interest Committee 2014-2016
Member SEAS Finance Committee, 2012-2014
Member SEAS Grading Committee 2011-2012.
Member SEAS By-Laws Review Committee, 2011-2012.
Member SEAS Finance Committee (2010-2013)
Chairman of Associate Dean Search Committee 2009

Dean Search Committee, 2007-2008
Graduate Curriculum Committee, 2007-2008
Chairman of the SEAS Mission Statement Committee, 2002.
Chairman of SEAS Strategic Planning Committee, 2002-2003
Northern Virginia Campus Co-Coordinator for SEAS, 1990-91.
Elected Senate Representative of SEAS, 1985-1992, 2003-2011
Member School of Engineering Graduate Curriculum Committee, 2007-Present.
Member of the School of Engineering Finance Committee, 1991-1998, 2001-2003.
Elected Chairman 1992-93, 1994-95, 1996-97.
Elected Member of the School of Engineering Dean Search Committee, 1990-92.
Elected Chairman 1990-91.
Member of SEAS Study-Abroad Committee
Member, Advisory Counsel on Continuing Engineering Education (CEEP)
Elected At-Large member of the School of Engineering Dean Search Committee. Elected Chair (1998).

Department of Mechanical and Aerospace Engineering

Member of Personnel, Committee, Laboratory Committee, Curriculum Committee, etc.
Developed Curriculum of the undergraduate MAE Patent Option.

Department of Civil and Environmental Engineering

Interim Department Chairman, 2003-2004.
Chairman of Dept. Chair Search Committee, 2003-2004.

PEDAGOGICAL EXPERIENCE

The George Washington University (1978-Present)

Undergraduate:
- Fluid Mechanics I
- Fluid Mechanics II
- Thermal Systems Design
- Heat Transfer
- Vibration Analysis
- Thermodynamics
- Mechanical Engineering Laboratory
- Applied Science (Differential Equations)
- History and Economic Impact of the U. S. Patent System

Graduate:
- Intermediate Fluid Mechanics
- Applied Aerodynamics
- Convective Heat and Mass Transfer
- Combustion
- Compressible Flow
- Energy Systems and Analysis

Hydrodynamics
Turbomachinery I
Viscous Flow
Applied Science (ApSc 211) (Complex Variables)
Vibration Analysis

Massachusetts Institute of Technology (1973-76)

Undergraduate: Fluid Mechanics

Graduate: Fluid Mechanics

Universidad Central de Venezuela (1971-73, 1976-78)

Undergraduate: Mechanics (Statics & Dynamics)

Graduate: Classical Mechanics
Theory of Perturbations

Universidad Simon Bolivar (1976-78)

Undergraduate: Fluid Mechanics

State University of New York at Stony Brook (1966-71)

Undergraduate: Teaching Assistant in Fluid Mechanics, Thermodynamics, Heat Transfer.

THESES AND DISSERTATIONS DIRECTED BY C. A. GARRIS at GWU

Irdmusa, J. Z.: "Energetics of Pulsed Jets", M. S., 1982.

Anjum, M. I.: " Rotating Stall in a Cascade of Vanes", M. S. 1984.

Delianides, T. P.: "Design and General Performance Characteristics of a Water-Water Rotary-Jet Forward Motion Facility", M.S., 1984.

Paparella, C.: "Comparative Exergy Analysis of Cryptosteady Energy Separation Systems in Air Cooling Cycles", M. S., 1985.

Sideropoulos, G.: "Shroud Design for the Rotary Jet", M. S., 1985.

Oelsner, C. K.: "External Modes of Energy Separation", M. S., 1986.

Anjum, M. I.: "Transition from Nonsteady Flow to Steady Flow in Vaneless Diffusers", Ph.D., 1988.

Parker, W. J.: "Prediction of the Heat-Release Rate of Wood", Ph.D., 1988.

Irdmusa, J. Z. "Experimental and Analytical Investigation of Low Solidity Axial Turbines", Ph.D.,1989.

Cordier, S. J.: "Rotary-Jet Thrust Augmenter with Jet-Flapped Blades", Ph.D., 1989.

Abdel-Wahab, M.: "Ejector Thrust Augmenters Pulse Starting Approach to the Second-Solution", Ph.D., 1990.

Hodges, B. R.: "Pressure Driven Flow Through and Orifice for Two Stratified Immiscible Liquids", M. S., 1991.

Toh, H. K.: "A Study of the Fluid Dynamics in the Mixing Region of a Hubless Rotary Jet Thrust Augmenter", M. S., 1992.

Amin, S.: "Nonsteady Flow Induction: An Experimental Investigation", Ph.D. 1994.

Kennemuyi, M.: "A System Analysis of Non-Steady Flow Ejectors in a Novel Refrigeration Cycle, Ph.D. 1996.

Shipman, J. "A Computational Fluid Dynamics Analysis of the Supersonic Pressure-Exchange Ejector", MS Thesis, May 1999. (Jointly supervised with C. Mavriplis)

Castro, N. "Fault Detection in Vapor Compression Refrigeration", MS Thesis, December 1999.

Al-Hussan, K. "A Computational Study of the Supersonic Pressure-Exchange Ejector", PhD. Dissertation, December 2002.

Ababneh, A. "A Computational Study of the Radial Flow Pressure-Exchange Ejector, PhD. May 2003.

Kamara, M. Y. "An Investigation of the Effect of Variable Ejector Efficiency on the Performance Characteristics of a Steam Condenser in an Ejector Refrigeration System", Professional Degree, May 2006.

Zhang, H. "Computational Study of the Multi-Dimensional Aspects of the Pressure Exchange Process and its use in an Ejector and in Ejector Refrigeration using Steam as the Refrigerant", Ph.D. Dissertation, August 2007.

Umar, M. "The Radial Flow Pressure-Exchange Ejector - Computer Simulation," Ph.D. Dissertation, December 2007.

Hong, W. J.: "The Fluid Dynamics of Non-Steady Flow Ejectors in Pumping Applications", Ph.D. Dissertation, In Progress.

Bulusu, K. "An Experimental Investigation of the Pressure-Exchange Compressor-Expander." Ph.D. Dissertation, June 2010.

Gould, D. "Use of Waste Heat for Ejector Refrigeration in Automotive Applications," MS Thesis, August 2009.

Chabukswar, K. "Pressure Exchange Flow Induction in Distillation type Water Desalinization," MS Thesis, August 2009.

Cunha, Fabricio "Detailed Analysis of Flow Features in Propeller Turbines,' MS Thesis, June 2010.

Hameed Ashgar "Survey of State of the Art Energy Storage Systems", Professional Degree Thesis in Progress.

Michael Ducker "Study of a Natural Gas Combined Cycle Power Plant with Carbon Dioxide Separation", MS Thesis , May 2012.

Siddarth Jeripatola "Comparative Study of Thermally Powered Refrigeration Systems and the use of Environmentally Friendly Refrigerants," M. S. Thesis in Progress.

SPONSORED RESEARCH SINCE 1980 OF C. A. GARRIS

Principal Investigator: Air Force Office of Scientific Research: "Research on Non-Steady Flow Induction", 03/01/80-05/31/84, $502,786,

Principal Investigator: Department of Energy:"Fluid Dynamic Energy Separation", 9/15/83-09/14/85, $280,925.

Principal Investigator: Department of Energy:"Fluid Dynamic Energy Separation", 9/15/85-5/31/87, $250,683.

Principal Investigator: National Aeronautics and Space Administration: "Research on Flow Induction by Rotary Jets", 06/15/85-09/01/86, $34,971.

Principal Investigator: Department of Transportation, Maritime Administration: "Rotary-Jet Marine Propulsion", $49,700.

Principal Investigator: Institute for Defense Analysis: "Research on Aircraft Applications of the Energy Separator", 05/28/87-05/28/88, $100,000.

Principal Investigator: U. S. Army, Fort Belvoir Research & Development Center, "Computer Code Development", 1988, $5,000.

Principal Investigator: National Science Foundation:"Group Travel Grant to XXII International Symposium on Manufacturing and Materials Processing", 1990, $12,751.

Principal Investigator: National Aeronautics and Space Administration: "Research on Rotating Ejectors", 02/02/88-1994, $270,000.

Principal Investigator: National Science Foundation / Environmental Protection Agency Partnership on Technology for a Sustainable Environment: "A Novel Pressure Exchange Ejector Refrigeration System with Water as the Refrigerant", 11/96-10/03, $595,000.

CONSULTING:

Afros Corp.; Advanced Technology Corp.;NAVPRO at United Technologies; Bendix Corp.; Solara Corp.; Speakman Corp.; Pacific Instruments; Utility Consultants Corp.(Director); Cushman, Darby, & Cushman; Klayman & Gurley; Schmidt & O'Brian; Thompson, Larson, McGrail, O'Donnell & Harding; The Corporation Counsel, Washington D. C.; National Science Foundation; Stanwick Associates; Memry Metals, Inc.; Siciliano & Ellis; Ablondi & Forster; Gilberg & Kurent; Nixon & Vanderhye; The World Bank; Lake Center Industries; Kenyon & Kenyon; Wigman, Cohen, Leitner, & Meyers; Andrus, Sceales, Starke, Sawall; Fish & Richardson; Dickstein, Shapiro, Morin & Oshinsky LLP ; Blank, Rome, Comisky & McCauley LLP; Roylance, Abrams, Berdo, & Goodman, LLP; Bryan Cave LLP; Heat Vehicle Corp.;

REPORTS ON ACADEMIC ISSUES AT THE GEORGE WASHINGTON UNIVERSITY

Garris, C. A.:"Survey on Teaching Loads and Research Productivity of Full-Time Faculty", Special Report, Senate Committee on Research, April 9, 1990.

Garris, C. A.:"On the Need for Teaching Load Reductions at The George Washington University", Special Report, Senate Committee on Research, April 13, 1990.

Coates, A., Cohen, M., Garris, C. A.:"Towards a Means for Assessing Academic Productivity at The George Washington University", Presidential Report, The George Washington University, April 1991.

Garris, C. A.:"A Comparison of GWU and SEAS with a Market Basket of Institutions", Prepared for the SEAS Finance Committee, July, 1992.

Garris, C. A.:"A Vision for the CMEE Department", September, 1992.

Garris, C. A."A Comparative Study of the Financial Development of the School of Engineering and Applied Science", May, 1993.

Garris, C. A. (Chair): "A Strategic Plan for Mechanical and Aerospace Engineering", (Unanimously adopted by MAE Faculty),1998.

PUBLICATIONS

Lee, S. L., Garris, C. A.:"The Formation of Multiple Fire Whirls", Twelfth Symposium (International) on Combustion, The Combustion Institute, 1969.

Garris, C. A., Lee, S. L.:"A Theory for Multiple Fire Whirl Formation", Fourteenth Symposium (International) on Combustion. The Combustion Institute, 1973.

Garris, C. A.:"La Conveccion Natural Laminar de Una Fuente Lineal de Calor Infinito con Vorticidad Ambiental", Acta Cientifica Venezolana, 24, 1, 1973.

Toong, T. Y., Arbeau, P., Garris, C. A., Patureau, J. P.:"Acoustic Kinetic Interactions in an Irreversibly Reacting Medium", Fifteenth Symposium (International) on Combustion, The Combustion Institute, 1975.

Garris, C. A., Lee, S. L.:"An Instability of a Shear Field-Buoyancy Field Interaction Leading to Vortex Formation",Journal of Applied Mechanics, 41,4,pp.891-897, December 1974.

Garris, C. A., Toong, T. Y., Patureau, J. P.:"Chemi-Acoustic Instability Structure in Irreversibly Reacting Systems", Astra Astronautica,v2, 981-997, 1975.

Moussa, N. A., Toong, T. Y., Garris, C. A.:"The Mechanism of Smoldering Combustion in Cellulosic Materials", Sixteenth Symposium (International) on Combustion, The Combustion Institute, 1977.

Patureau, J. P., Toong, T. Y., Moussa, N. A.:"An Experimental Investigation of Acoustic-Kinetic Interaction in Non-Equilibrium H_2-Cl_2 Reactions", Sixteenth Symposium (International) on Combustion, The Combustion Institute, 1977.

Garris, C. A., Toong, T. Y., Moussa, N. A.:"A Parametric Study of Pyrolysis Wave Propagation", Proceedings of the Fifth International Symposium on Combustion Processes, Polish Academy of Sciences, 1977.

Cho, S. A., Fookes, R., Garris, C. A.:"Efficiency of Ceramic Absorber Coatings for Solar-Thermal Conversion", Ceramics International, V7,1, 1981.

Irdmusa, J. Z., Garris, C. A.:"A Preliminary Study of Vortex Formation from Pulsed Jets", Proceedings of the Ejector Workshop for Aerospace Applications, Wright-Patterson Air Force Base, June 1982.

Garris, C. A., Irdmusa, J. Z.:"The Energetics of Vortex Formation", Proceedings of the ASME WAM, Nov. 1983.

Foa, J. V., Garris, C. A.:"Promising Advances in Non-Steady Flow Utilization; Crypto-Steady Modes of Energy Exchange", Mechanical Engineering, November 1984.

Foa, J. V., Garris, C. A.:"Cryptosteady Modes of Direct Fluid-Fluid Energy Exchange", chapter in the book Sladky, S. L.:"Machinery of Direct-Fluid-Fluid Energy Exchange", American Society of Mechanical Engineers, New York, 1984.

Garris, C. A.:"A Comparison of Results on Energy Separation Devices", Proceedings of the First International Power Conferance", Chinese Academy of Sciences, Beijing, 1986.

Irdmusa, J. Z., Garris, C. A.:"The Influence of Initial and Boundary Conditions on Vortex Ring Development", AIAA Journal, v25, 3, March, 1987.

Cordier, S., Garris, C. A. :"Rotating Primary Flow Induction Using Jet-Flapped Blades",Proceedings of the Ninth International Symposium on Air Breathing Engines, 1989.Anjum, M. I., Garris, C. A.: "An Experimental Investigation of Non-Steady Flow in Vaneless Diffusers", Proceedings of the Ninth International Symposium on Air Breathing Engines, 1989.

Garris, C. A., Toh, K. H., Xie, L.:"A New Concept for Hubless Rotary Jet Thrust Augmenters", Proceedings of the 27th Joint Propulsion Conferance, ASME/AIAA, 1991.

Garris, C. A., Toh, K. H., Amin, S.: "Flow Induction by Pressure Forces", Proceedings of the 28th Joint Propulsion Conference, ASME/AIAA, 1992.

Garris, C. A., Amin, S.:"An Experimental Investigation of a Non-Steady Flow Thrust Augmentor. Journal for Propulsion and Power, July 1996.

Garris, C. A., Hong, W. J.: "A Radial-Flow Pressure-Exchange Ejector",Proceedings of the Third International Symposium on Pumping Machinery, Vancouver, Canada, ASME, June 1997.

Garris, C. A., Hong, W. J., Mavriplis, C. M., Shipman, J.: "An Environmentally Friendly Pressure-Exchange Ejector Refrigeration System", Forum on Industrial and Environmental Applications of Fluid Mechanics; 1998 ASME Fluids Engineering Division Summer Meeting Washington, DC, June 21-25, 1998.

Garris, C. A., Hong, W. J., Mavriplis, C. M., Shipman, J.: "An Experimental and Numerical Study of the Pressure-Exchange Ejector; forum on Fluid Machinery, 1998 ASME Fluids Engineering Division Summer Meeting, Washington, D. C., June, 1998.

Garris, C. A., Hong, W. J., Mavriplis, C. M., Shipman, J.: "A New Thermally Driven Refrigeration System with Environmental Benefits", 33rd Intersociety Conference on Energy Conversion, Colorado Springs, CO, August, 1998.

Garris, C. A., Hong, W. J., Mavriplis, C. M., Shipman, J.: "The Pressure-Exchange Ejector Heat Pump", 1998 ASME International Mechanical Engineering Conference and Exposition, Anaheim, CA, November 15-20, 1998.

Garris, C. A. "The United States Patent System: Innovation and Engineering Design Education in a Free Market Society"; Accepted for publication in the Proceedings of the International Conference of Engineering Education, Ostrava, Czechoslovakia, ASEE, 1999.

Garris, C. A., Hong, W. J., Mavriplis, C. M.: Non-Steady Flow Ejector Technology Applied to Refrigeration with Environmental Benefits", submitted to the 38th American Institute for Aeronautics and Astronautics Aerospace Sciences Meeting, Reno, Nevada, January 2000.

Garris, C. A. "The United States Patent System: An Essential Role in Engineering Design Education", J.Engineering Education, April 2001.

Hong, W. J., Alussan, K., Garris, C. A. "The Supersonic / Rotor-Vane / Pressure-Exchange Ejector";
39th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 8-11, 2001.

Garris, C. A.: "The Role in Aerospace Engineering Design Education of The United States Patent System"; 39th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 8-11, 2001.

Garris, C. A.: "Seeking the Optimal Balance of Aerodynamic, Structural and Mechanical Design Requirements in the Pressure Exchange Ejector: A Case History", OPTI 2001,Bologna, Italy, May 28-30, 2001.

Garris, C. A.: "The Direct-Contact Pressure-Exchange Compressor-Expander", FEDSM2001-18154, Proceedings of the ASME Fluids Engineering Division Summer Meeting, Fluid Machinery Forum, New Orleans, LA, May 29, 2001.

Hong, W. J., Alhussan, K., Zhang, H., Garris, C.: "A Novel Thermally Driven Rotor-Vane/Pressure-Exchange Ejector Refrigeration System with Environmental Benefits and Energy Efficiency.", Proceedings of the 15th International Conference on Efficiency, Costs, Optimization, Simulation, and Environmental Impact of Energy Systems, Berlin, Germany, July 3-5, 2002.

Alhussan, K., Hong, W. J., Garris, C. A.: " A Thermally Driven Supersonic Rotor-Vane / Pressure-Exchange Ejector with Environmental Benefits ", Proceedings of Joint US ASME-European Fluids Engineering Summer Conference , Montreal, Canada, July 2002.

Hong, W. J., Alhussan, K., Garris, C. A.: "An Experimental and Computational Investigation on the Overall Shapes of the Vanes of the Supersonic Rotor-Vane / Pressure-Exchange Ejector ", Proceedings of Joint US ASME-European Fluids Engineering Summer Conference , Montreal, Canada, July 2002.

Zhang, H. F., Garris, C. A.: "Recent Progress in Pressure Exchange Ejector Research", Proceedings of the International Conference on Energy and the Environment, Shanghai, China, December 2003.

Hong, WJ, Zhang, H. F., Alhussan, K., Ababneh, A., Garris, C. A.: A computational Study of Two novel Non-steady Pressure Exchange Ejectors with Environmental Benefits and Energy Efficiency", Paper HT-FED2004-56370, 2004 ASME Heat Transfer / Fluids Engineering Summer Conference, Charlotte, North Carolina, July 11 -15, 2004.

Alhussan, K., Garris, C. A.: "Comparison of Cylindrical and 3_D Cubic B-Spline Curve of Shroud-Diffuser for a Supersonic Pressure Exchange Ejector in a 3_D, Non-Steady, Viscous Flow. IASM/WSEAS International Conference on Fluid Mechanics, Corfu, Greece, August 17-19, 2004.

Zhang, H. F., Garris, C. A.: "Pressure Exchange in Multi-Dimensions," Invited Paper on Wave Rotor Technology, International Mechanical Engineering Congress & Exposition, Anaheim, CA, November 14-19, 2004.

Alhussan, K., Garris, C. A.: "Study of the Effect of Changing Inlet Area Ratio of a Supersonic Pressure Exchange Ejector", 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 10-13, 2005.

Alhussan, K., Garris, C. A.: "Effect of Changing Throat Diameter Ratio on a Steam Supersonic Pressure Exchange Ejector," Modern Physics Letters B, v. 19, Special Issue, pp 1715-1718, Dec. 20, 2005.

Zhang, H., Garris, C. A.: "Pressure-Exchange: A Fundamental Inquiry," 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 10-13, 2005**.**

Zhang, H. F., Garris, C. A.: "Comparison of Performance between Pressure Exchange Refrigeration and Absorption Cycle Refrigeration", Symposium on Absorption/Sorption Heat Pumps and Refrigeration Systems, ASHRAE Winter Meeting, Orlando, FL, Feb. 5-9, 2005.

Al-Hussan,K., Garris, C. A.: "Qualitative Study of Flow Induction Phenomena in Three Dimensional Non-Steady Supersonic Flow.", In preparation for submission to Journal of Fluids Engineering, ASME.

Ababneh, A., Garris, C. A.: "Progress in Numerical & Experimental Investigation of the Supersonic Pressures Exchange Ejector," JIMEC 2004, Proceedings of The fifth Jordanian International Mechanical Engineering Conference
April 26-28, 2004, Amman - Jordan.

Hong, W. J., Alhussan, K., Zhang, H., Garris, C.A.: "A Novel Thermally Driven Rotor-Vane/Pressure-Exchange Ejector Refrigeration System with Environmental Benefits and Energy Efficiency." ENERGY, v.29, pp2331-2345, Elsevier, 2004.

Ababneh, A., Garris, C. A.: "The Implementation of Non-steady Flow Ejectors for the Improving of Energy Utilization**",** Submitted to J. Of Fluids Engineering, ASME. 2005.

Alhussan, K., Garris, C. A.: “Computational Analysis of Flow Inside a Diffuser of Three-Dimensional Supersonic Non-Steady Ejectors,” Forum on Industrial Flows, Paper IMECE2005-80843**,** ASME International Congress and Exhibition, Orlando, FL, Nov. 5-11, 2005.

Alhussan, K, Garris, C. A.: “Characteristics of Non-Steady Pressure Exchange Ejectors”, Proceedings of 2nd Joint US-Europe Fluids Engineering Summer Meeting, Paper FEDSM2006-98403, ASME, July 2006.

Zhang, H., Garris, C. A.: "Pseudo-Impellers in Supersonic Crypto-Steady Flow Induction,", IMECE2007-43240; Proc. of International Mechanical Conferance, Nov. 11-15, 2007, Seattle, WA, ASME.

Zhang, H., Garris, C. A.: "Crypto-Steady Supersonic Pressure Exchange: A Simple Analytical Model," Applied Energy, v.85, pp26-40, Elsevier, 2008.

Alhussan, K., Garris, C. A.: 'Computational Investigation of the Qualitative Study of Flow InductionPhenomena in Three-dimensional, Non-steady Supersonic Pressure Exchange Ejector Journal of Mechanics of Fluid ', JPH, India, Vol. 1 no: 1 (June 2008) '.

Umar, M., Garris, C. A.: "On Length Scales for the Ratial Rotating Jet Pressure Exchange Mechanism.", Proceedings of IMECE2008, Paper No.66666, ASME, Boston, MA, 2008.

Bulusu, K., Gould, D., Garris, C. A.: "Evaluation of Efficiency in Compressible Flow Ejectors," Proceedings of IMECE2008, ASME, Boston, MA, 2008.

Gould, D. M., Garris, C. A.: "The Design and Rating of the Pressure Exhcange Steam Ejector for a Modified Automotive Air Conditioning System," Proc.3rd Int.Energy Sustainability Conf., ES2009-90218, San Francisco, CA, ASME, 2009.

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Umar, M., Garris, C. A.: "On Mutual Deflection for the Radial Rotating Jet Pressure Exchange Mechanism", Paper IMECE2009-12836, Lake Buena Vista, FL; November 13-19, 2009.

Umar, M., Garris, C. A.: "Effect of Geometric Parameters on the Performance of a Radial Flow Pressure Exchange Ejector", Paper IMECE2010-40480, Vancouver, BC; November 12-18, 2010.

Bulusu, K. V., Garris, C. A.: "A Study of Entropy Rise across Supersonic Pressure Exhange Enhancing Rotors," 63 Annual Meeting of the American Physical Society; Division of Fluid Dynamics; Long Beach, CA.; Nov. 21-23, 2010.

Bulusu, K. V., Garris, C. A.: "Streamwise Turbulence in Pressure Exchange Processes," Submitted to 7th International Symposium on Turbulence and Shear Flow Phenomena, Ottowa, CA, July 28-31, 2011.

Bulusu, K. V., Garris, C. A.: "The Influence of Shear Layer Turbulence on Stationary Pseudoblades in Supersonic Pressure Exchange Inducing Flow Fields", J.Fluids.Engr., ASME, v.133,Nov. 2011.

Wang, J., Liang, C., Garris, C. A.: "Two-Dimensional Discontinuous Galerkin Simulations of Crypto-Steady Supersonic Pressure Exchange," paper number, IMECE2011-65818, Procedings of the the International Mechanical Engineering Congress and Exhibition; Denver, CO, Nov. 11-17, 2011,

Umar, M., Garris, C. A.: Effect of Fluid Dynamic Parameters on the Performance of a Radial Flow Pressure Exchange Ejector," IMECE2012-89360, Procedings of the the International Mechanical Engineering Congress and Exhibition; Houston, TX, Nov. 9-15, 2012.

Garris, C. A., Liang, C.: "Pressure Exchange Heat Pump: Natural Gas Residential Air Conditioning", Proceedings of the ASME International Mechanical Engineering Congress & Exposition; IMECE2013-65944; San Diego, CA; Nov. 15-21, 2013.

Charles A. Garris, Jr., Charles A. Garris III: "The United States Patent System and Engineering Education: an Alliance for Innovation": Invited paper for J. Technology and Innovation, National Academy of Inventors, September 1, 2017: https ://www.ingentaconnect.com/content/nai/ti/2017/00000019/00000002/art00005

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Aihong Meng, Xiang Gao, Nannan Li, Charles A. Garris, Jr.: "Study on the Effect of Structural Parameters on the Linear Control Performance of a High Speed On-Off Valve Based on Flow Field Analysis," 38th Annual SAE Brake Colloquium, Paper 2020-BC-0103, SAE, October 2020.

Aihong Meng, Charles Garris: Lingtao Wei, Haichao Liu: "Visual System Analysis of High Speed on-off valve Based on Multi-Physics Simulation", SAE World Congress, Paper 22PFL-0730/2022-01-0391, 2022.

Charles A. Garris, Jr.

Expert Testimony in Patent and Product Liability Lawsuits

1. Corporation Counsel, Washington, D. C. (Jamal Rashid)
Rosenbloom vs. **DC**, Civil Action 11064-83
Trial 11/21/86.
Negligence suit involving pneumatic brakes on trucks.

2. Cushman, Darby & Cushman (Pete Gowdy, Bill West, & Carl Love)
Afros vs. Kraus-Maffei
Deposition & Trial, Feb. 1987.
Patent infringement case involving the design of reaction injection molding heads.

3. Klayman & Gurley (Larry Klayman)
ITC Judge Trial 7/8/87
Meditech International vs. **Polycraft Corp**.
Patent infringement trial involving the manufacturing process for extruded ziplock type plastic bags.

4. Ablondi & Foster (Sturge Sobin)
Kingdom Plastics vs. **Minigrip**
ITC Trial 3/9/89
Patent infringement trial involving the manufacturing process for extruded ziplick type plastic bags.

5. Gilberg & Kurent (Barry Trebach, Martha Knudson)
Tallman vs. **Mayco Pump Corporation** Deposition 11/28/90.
Product liability case involving the design of concrete pumping machines. Settled out of court.

6. Nixon & Vanderhye (Larry Nixon)
Schick vs. **American Safety Razor**
Jury Trial, 4/5/92.
Patent infringement case involving polyethylene oxide lubricating strips on disposable razors.

7. Cushman, Darby, & Cushman (Larry Hymo, Chris Comuntzis)Tec Air vs. **Nippondenso Mfg**. (defendant) .Jury trial, 12/9/92. Patent infringement case involving injection molded balancing plugs for plastic automobile radiator fans.

8. Wigman, Cohen, Leitner, & Meyers (Michael White, George Meyers)
Mainstream Engineering vs. **Keysports USA**.
Prepared affadavit for injunction proceeding. Settled prior to trial.
Patent infringement case involving micro-climate control vest.

9. Kenyon & Kenyon (William Wells, Jr., Mark M. Supko)
Chemtron, Inc (Plaintiff). vs. U. N. X. Chemicals
Prepared expert report. Deposed twice. Settled out of court just before trial.
Patent infringement case involving industrial detergent dispensor.

10. Cushman, Darby, & Cushman (George Sirilla, William West, Paul Edgell)
Steelcase, Inc. vs. **Haworth, Inc**.. Patent infringement case involving chair mechanisms.
Prepared expert report, deposition. Settled out of court. 1997.

11. Cushman, Darby, & Cushman (Barry Golub, Christopher Murphy), **Incline Technology** vs. PacificMedical Group, Patent infringement and trade secret litigation involving the design of manufacturing machinery for sterile cleaning pads. Case settled. 1997

12. McDermott, Will, & Emery (Kenneth J. Jurek, Rosanne J. Faraci) Tecair vs. **Denso**. Jury trial May, 1997. Patent validity trial in case involving injection molded balancing plugs for plastic automobile radiator fans. Served as expert for defendant (Denso) at trial. Prepared declaration and was deposed.

13. Andrus, Sceales, Starke, & Sawall (George H. Solveson, Denise Stoker); **Miotto** vs. Leggett & Platt; Patent infringement case involving office chair mechanisms; Prepared expert declaration in behalf of Miotto International; Testified in Markman Hearing and Bench Trial, Feb. 1999.

14. Pillsbury, Madison, Sutro LLP (Cushman, Darby, Cushman Group) (George Sirilla, Jeffrey Semenour); Universal Tool & Stamping vs. Ventra Group; International Trade Patent Infringement Case involving automotive scissors-jacks. Prepared Expert Witness Report. Settled out of court.

15. Fish & Richardson P. C. (Michael J. McKeon, Ralph Mittelerger); Corning Glass vs. **Precision Optical Fibre**; International Trade Patent Infringement Case involving the manufacture of optical fibre. Conducted investigation of manufacturing methods at POF, Einhoven, Netherlands, and performed computational fluid dynamic analysis of technology. Planned experiments to test physical hypotheses. Settled out of court.

16. Dickstein, Shapiro, Morin, & Oshinsky LLP; (Laurence Fisher, Charles Saber); Acadia Elastomers Corp. vs JRLon Inc; Patent infringement case involving dynamic fluid seals; prepared expert report, settled out of court March 2000.

17. Andrus, Sceales, Starke, & Sawall (George H. Solveson, Denise Stoker); **NOVA Industries** vs. Tutco Inc.; Patent infringement case involving electric heater coil insulating supports; case concluded by summary judgement in favor of NOVA.

18. Pillsbury, Madison, Sutro LLP (Cushman, Darby, Cushman Group) (George Sirilla, Adam Hess); Softview Computer Products Corp. vs. **Haworth, Inc**. Patent infringement case involving computer keyboard supports. Prepared Expert Witness Report. Deposition. Case settled.

19. Walter M. Schey Associates: (Walter Schey); Schwing vs **Putzmeister**; patent infringement case involving concrete pumping machinery; prepared expert report; case settled..

20. Walter M. Schey Associates: (Walter Schey); Asfeld vs. **Putzmeister**, personal injury / product liability case involving concrete pumping machinery, settled.

21. Bryan Cave LLP: (William Edgar, Christopher Manning); Roche Diagnostics vs. **Packaging Coordinators**, Inc., liability case involving thermal environmental control during drug shipment,
provided analysis and experimentation, settled.

22. Dickstein, Shapiro, Morin, & Oshinsky (Jeffrey Johnson, Mark Thronson, Mark Stickland), **Durotec** vs ASM; patent infringement case involving airless paint spray nozzles; prepared expert report, case settled.

23. Roylance, Abrams, Berdo, & Goodman (Michael Murphy, Jeffrey Howell), Centuri Corp. v. **Spinmaster Toys**, patent infringement case involving air operated reciprocating motors for model airplanes, settled 12/2000.

24. Blank, Rome, Comisky, & McCauley (Michael White, Bryan Jones), **WCM Industries** v. Oatey Co., patent infringement case involving plumbing drain fittings, prepared expert reports on infringement and on validity, settled 01/2001.

25. Blank, Rome, Comisky, & McCauley (Charles Wolfe, Denise Lane), **P&M Products** vs. Rose Art Industries; patent infringement case involving air brushes, prepared expert reports on infringement and on validity, deposed, testified in Markman Hearing, case settled.

26. Fulwider, Patton LLP.; (Verne Schooley); Farmer et al. V. **Medo Industries**; patent infringement case involving automotive air freshening devices, prepared expert reports & declarations, twice deposed, jury trial 11/2003.

27. Andrus, Sceales, Starke, & Sawall (George H. Solveson); **Douglas Dynamics** v. Curtis International; Patent infringement case involving removable snow plows, prepared expert report, settled 3/2002.

28. Pillsbury Winthrop, LLP (Kimberley McDonnell), Turn-key Tech LLC v. **Daimler Chrysler Corp**, patent infringement case involving laminated injection molded tail-light lenses for vehicles, prepared expert report, deposed, settled March 2003.

29. Pillsbury Winthrop, LLP (William Atkins, Kevin Kramer), Simmons, Inc. v. **Bombardier,** patent infringement case involving snowmobile skis, Summary Judgement order in favor of Bombardier.

30. Dickstein, Shapiro, Morin, Oshinski (Chuck Saber, Peter Veytsman); Brother vs. **IIMAK**. Patent infringement case involving printer cassettes. Prepared expert report, twice deposed, settled 9/2003.

31. Pillsbury Winthrop, LLP (Adam Hess); Abdo Inc. vs. **Stamina**; patent inventorship case involving exercise machines; prepared expert report, deposed, case settled.

32. Andrus, Sceales, Starke, & Sawall (George Solveson, Aaron Olejniczak); **Jakel** v. FASCO; patent infringement case involving blowers for heating furnaces, prepared Markman declaration, deposed.. Case settled 2003.

Solmetex Ex. 2011
DRNA v. Solmetex - PGR2023-00555

33. Knobbe, Martens, Olson & Bear (Paul Tripodi II); **Winn Incorporated** v. Eaton Corporation; patent infringement case involving shock absorbing grips for golf clubs and the like. Prepared expert report, deposed. Case settled.

34. Fulwider, Patton LLP.; (Verne Schooley); **Meziere** v. Specialty Auto Parts; Trade dress case involving water pumps for racing cars. Prepared expert report. Deposed 2/17/04. Case settled.

35. Andrus, Sceales, Starke, & Sawall (George Solveson, Aaron Olejniczak);Parker Hannifan v. **Fleetguard**; patent infringement case involving diesel fuel filters. Prepared expert report, deposed 3/19/04. Case settled June 2004.

36. Blank, Rome, Comisky, & McCauley (Victor Wigman); **Green Keepers of Delaware**; patent interference case before the Board of Patent Appeals and Interferences; Case involves injection molding of polymer golf shoe cleats and the innovative aspects of the cleats; prepared expert report; deposed 3/31/04.

37. Patton Boggs LLP (Marc Labgold, Scott Chambers, Martin Sulsky); **Becton Dickinson** v. Tyco Healthcare Group; patent infringement case involving single-handedly actuatable safety shield for needles; deposed 4/28/04; jury trial 2004.

38. Fulwider, Patton LLP.; (Verne Schooley); **Motorvac** v. Norco; patent infringement case involving automatic vehicle transmission oil changing machines; prepared expert report; deposed, jury trial 2004.

39. Andrus, Sceales, Starke, & Sawall (George Solveson, Aaron Olejniczak); **PDQ** v. Ryko; patent infringement case involving brushless automobile car wash machines; prepared expert report; case pending.

40. Patton Boggs LLP (Marc Labgold, Scott Chambers, Martin Sulsky); MBO Laboratories v. **Becton Dickinson**; patent infringement case involving single-handedly actuatable safety shield for needles; case closed.

41. Andrus, Sceales, Starke, & Sawall (George Solveson, Aaron T. Olejniczak); **Flow Corp** vs. OMAX Corp; patent infringement case involving abrasive water jet cutting, prepared two declarations on claim contruction, deposed 5/2006, testified at Markman hearing, case settled 08/2008.

42. Connolly, Bove, Lodge, Hutz (Harold Pezzner, Richard Powers, Eric Hutz; F. DiGiovanni, M. C. Lambert) **Parker Hannifan** v. Wix; patent infringement case involving vehicle fuel and oil filters; prepared two declarations in support of preliminary injunction; deposed 5/2006, prepared Expert Report; deposed 1/8/08; (case settled.)

43. Connolly, Bove, Lodge, Hutz (Harold Pezzner, Frank DiGiovanni, Curt Lambert) **Parker Hannifan** v. Champion; patent infringement case involving vehicle fuel and oil filters; prepared Expert Report;deposed 12/6/07; case settled.

44. Pillsbury, Winthrop, Shaw Pittman LLP (William Atkins, Bryan Collins) **Fellowes** v. Michilin: Patent infringement case involving office multimedia shredders; prepared expert report, testified in Markman hearing 7/2006; 8/30/06 - Decided by summary judgement in favor of Fellowes.

45. Jacobson Holman LLP (Harvey Jacobson, Michael Slobasky); **Avitech** v. Embrex; Patent infringement case involving avian egg injection machines; prepared expert report, expert rebuttal report , case settled 11/2008.

46. Jones Day LLP (Patrick Norton, Susan Gerber) Robert Bosch GMBHc. v **Interstate Diesel Service**; Patent infrringement case involving stators for electronic diesel engine fuel injectors; prepared expert report, prepared declaration; deposed 1/11/07; case settled 1/17/07.

47. Vorys Sater Seymour & Pease LLP (Corinne Marie Pouliquen); Epstein Becker Green Wickliff & Hall PC (Steven Cochell); **Performance Aftermarket Parts Group, LTD** v. TI Group Automotive Systems, LLC.; Patent infringement case involving an electric- motor fuel pump for installation in a vehicle fuel tank; prepared tutorial, consulted with attorneys on prior art and claim construction, performed Fluent computational fluid dynamics analyses, consulted at trial; case settled 5/15/08.

48. Walter Schey Associates (Walter Schey); Campbell v. **Putzmeister Corp.**; Product liability case involving Telebelt concrete transporting machinery; prepared Expert Report, deposed 4/23/08; case settled, 10/2008.

49. Wilmer Hale LLP (William Lee, Amy Wigmore, William McElwain); **Becton Dickinson** v. Tyco Healthcare; Patent infringement case involving a single-handedly actuatable safety shield for hypodermic needles and blood collectors; testified at jury trial (11/30/2007).

50. Connolly, Bove, Lodge, Hutz (Frank DiGiovanni, Curt Lambert) **Parker Hannifan** v. Baldwin; patent infringement case involving vehicle fuel and oil filters; prepared declaration, Expert Report; case settled 7/2008.

51. Connolly, Bove, Lodge, Hutz (Frank DiGiovanni, Curt Lambert) **Parker Hannifan** v. WIX Champion Duramax; patent infringement case involving vehicle fuel filters; Prepared expert reports on infringement and validity, deposed, testified in jury trial Dec. 2009.

52. Blank, Rome (Charles Wolfe, Brian Higgins); **KEG** v. Reinhart Laimer, patent infringement case involving hydrodynamic sewer nozzles; prepared declaration on claim construction; deposition 10/21/08; deposition 01/06/12; prepared expert reports on infringement and on validity; case pending.

53. Andrus, Sceales, Starke, & Sawall (George Solveson, Aaron T. Olejniczak); **MBW** vs. Multiquip Corp; patent infringement case involving concrete riding trowels, prepared expert report on invalidity 10/20/2008, deposition 12/23/2008, case settled 10/2009.

54. Leader, Gorham LLP (Michael Purleski); Swimways vs. **Tofasco**; patent infringement case involving collapsible beach chairs; prepared expert reports, Markman declaration. Case settled, Nov. 2009.

55. Fulwider, Patton LLP (Vern Schooley); Translogic v **Leavelle**; patent infringement case involving pneumatic tube transport systems; prepared declaration on non-infringement 7/2009. Case settled 10/2009.

56. Andrus, Sceales, Starke, & Sawall (George Solveson, Aaron T. Olejniczak); **Douglas Dynamics** v. Buyers Products; patent infringement case involving snow plows, prepared declaration in support of claim construction, deposed 11/18/09 on claim construction; prepared expert reports on infringement and validity; deposed 5/28/2010 on expert reports, testified at jury trial October 2010.

57. Blank, Rome (Charles Wolfe, Katherine Barecchia); **Methode** v Delphi, patent infringement case involving automotive sensor pad for controlling airbag deployment. Prepared declaration in support of claim construction; Case settled 9/2012..

58. Andrus, Sceales, Starke, & Sawall (George Solveson, Aaron T. Olejniczak); **Therma-Stor LLC** v Abatement Technologies; patent infringement case involving space dehumidifiers, prepared declaration on claim construction, case settled.

59. Benesch, Friedlander, Coplan, & Aronoff LLP (Robert Nupp): Jack O. Cartner and Motrim, Inc. v **Alamo Group Inc.**, patent infringement case involving hydraulic circuits and hydraulic braking for mowers affixed to tractors. Assisted in forming non-infringement contentions and invalidity contentions. Case settled 02/2010.

60. Jacobson, Holman LLP (Michael Slobasky): SCS Interactive, Inc. et al v. **Vortex Aquatic Structures International Inc**; patent infringement case involving water theme park play systems; prepared declaration on claim construction; prepared expert report and rebuttal report. Case settled 06/2010.

61. Taylor, Porter, Brooks, & Phillips (John Murrill, Frederick Tulley): Kyle Broussard, et al. v. **Go-Devil Manufacturing of Louisiana, Inc.**: patent infringement case involving outboard propulsion units for shallow watercraft. Prepared expert reports on non-infringement and validity. Deposed 3/25/2010. Testified at Markman Hrg., Testified at Bench Trial on Validity of two patents 01/2014; both patents found invalid.

62. Connolly, Bove, Lodge, Hutz (Frank DiGiovanni, Curt Lambert) **Parker Hannifan** v. Baldwin ; patent infringement case involving vehicle fuel and oil filters; case settled 09/2010.

63. Taylor, Porter, Brooks, & Phillips (Jeanne Davis, Frederick Tulley): Huntwise, Inc. v. **Higdon Motion Decoy Systems, Inc**.; Patent infringement case involving an animated waterfowl decoy . Prepared an affidavit on non-infringement and validity in response to a motion for preliminary injunction. Case settled 2011.

64. Patton, Boggs, LLP (Scott Chambers, John McKeague): **L3 Services, Inc** v. Jeffrey Szekely et al.; patent infringement case involving binary ionization sterilization technology; prepared declarations and rebuttles concerning infringement and claim construction, case settled 2011.

65. Faegre, Benson LLP (T. Budd, B. Oberst, A. Johnson) **Donaldson** v Baldwin, patent infringement case involving vehicle engine air filters. Prepared Expert reports on Infringement and Validity; deposed 11/03/2011; Case Settled 01/2012..

66. Andrus, Sceales, Starke, & Sawall (Aaron T. Olejniczak, Daniel Hanrahan); **Mercury Marine** v. Volvo; Inter Partes Reexamination of a patent on propeller shaft arrangements for multiple propellers; prepared two declarations; case pending.

67. Arnold & Knobloch LLP (Gordon Arnold, Jason Saunders, Steven Ross); WesternGeco v. **Fugro-Geoteam Inc**; Patent infringement case involving control of seismic streamers in marine seismic surveying; prepared expert reports on validity and non-infringement; deposed 5/10/2012, jury trial 7/23/2012-8/10/2012; case settled during trial.

68. Fulwider Patton (V. Schooley, Scott Hansen); Whirlpool v. **Swift Green Filters**; patent infringement case involving water filters for refrigerators; prepared two declarations in support of ex-partes reexam of two patents; deposed 5/24/2012; case stayed pending reexam.

69. Christopher Weisberg PA (N. R. Lewis): **Jetlev** v. Flyboard; patent infringement case involving water jet-propelled personal propulsion devices; prepared expert report on infringement; deposed; appeared at Markman hearing; case settled Feb. 2013.

70. Fish & Richardson (J.Pond, C. Marchese) ; **ScentAir** v. Prolitec; Interpartes patent review case involving a system and method of treating the atmosphere within an enclosed space with a liquid scent; prepared declarations supporting invalidity of patents, deposed 9/26-27/2013, PETAB ruled that two patents in case were invalid 2014.

71. Fulwider Patton (V. Schooley, Scott Hansen); Wilden Pump v. **JDA Global**. Trade dress case involving double-diaphragm air accuated pumps. Case settled 5/2013.

72. Andrus IP Law (A. Olejniczak, C. Liro); A. C. Dispensing v. **Prince Castle LLC**. Interpartes Reexamination involving food liquid dispensing systems; prepared declaration; case Pending.

73. Miles & Stockbridge P. C. (O. Gabor, M. Messina); **Honeywell International** v. Nest Labs; Interpartes Reexam on home thermostat technology; Prepared two declarations. Case Pending.

74. Morgan, Lewis, & Bockius LLP (J. White, D. Morris; Scott Sherwin, Julie Goldemberg): Cobalt Boats v. **Sea Ray Boats & Brunswick Corp**; Patent infringement case involving a retractable step for use with a boat; prepared expert reports on infringement and invalidity; deposed 5/17/17; trial 6/8/17-6/19/17.

75. Andrus, Sceales, Starke, & Sawall LLP (A. Olejniczak, C. Liro): Cobalt Boats v. **Sea Ray Boats & Brunswick Corp**.; Interpartes Reexam before USPTO on a patent involving a retractable step for use with a boat; prepared a declaration; USPTO decision instituting IPR; deposed 1/7/2016; PETAB ruled Independent claim invalid, dependent claims held valid.

76. Porzio, Bromberg, & Newman P. C.(S. Chambers, J. McKeague, R. Oparil); Fontem Ventures v. **Vapor Corp**.; Patent infringement case on electronic cigarettes; prepared expert report, deposed 7/24/2015; case pending.

77. Morgan, Lewis, & Bockius LLP (J. White, D.G. Jei): O2Cool v **One World Tech**; Patent infringement case involving portable spray misting devices for personal cooling; prepared declaration on claim construction; deposed 2/3/2016.

78. Brackett & Ellis, P. C. (Joseph Cleveland): Zup, LLC v. **Nash Mfg**.; Patent Infringement Case involving water recreational boards such as wake boards, surf boards, kick boards and the like; prepared declaration in support of motion for summary judgement in favor of Nash. Court Granted MSJ and dismissed the case with prejudice on 1/13/2017.

79. Perkins Coie (Michael Oblon, David Baltazar); Ametek Instruments vs. **Fluke Instruments**.: IPR of U. S. Patent 8,342,742 which involves a temperature calibration system comprising a heat pipe or thermosiphon, a cooling unit, and a temperature calibration unit. Prepared two declarations. Deposed 4/3/2017 & 8/3/2017. IPR Instituted. Case pending final PETAB decision.

80. Finnegan, Henderson LLP (Joshua Goldberg, Chris Isaacs), Lisk vs **GITS (Caterpillar).** Patent infringement case involving proportional control valve assembly for a vehicle exhaust gas recirculation system. Prepared declaration, case settled.

81. Blank, Rome LLP (Ken Bressler, Russell Wong, Domingo Llagostera): Olaf Soot Design v. **Daktronics**. Patent case involving a winch system for raising and lowering theater scenery. Prepared declaration on noninfringement, deposed 8/8/2017, testified at trial 12/10/18-12/17/18. Case currently before the U. S. Supreme Court.

82. Fish & Richardson (Craig Deutch, Stuart Nelson) Wagner vs **Graco**; Post-grant review (PGR) of patent involving a spray tip used to define a spray pattern that is more uniform and requires reduced pressure for paint spraying applications. prepared declaration 7/2/2018, case settled.

83. Kirland & Ellis (Adam Kaufman, Kyle Kantarek): Arrows Up vs **Sandbox**; patent infringement case involving bulk shipping containers adopted for use with a broad range of granular materials such as proppants for Fracking, pulverised coal, seed, etc. Prepared declaration on invalidity 6/20/2019; deposed 9/27/2019, case settled.

84. Webb Law Firm (Barry Coyne): **Halosil** vs Eco-Evolutions; Patent inventorship case involving a patent for disinfection systems with foggers to deliver disinfectant throughout any complex space. Prepared expert report 11/1/2019; deposed 12/13/2019, case dismissed by the parties.

85. Miller & Martin PLLC: Smokeware LLC vs. **Premier Specialty Brands LLC**; IPR of U. S. Patent 9,615,693 on an adjustable vented chimney cap system for use on outdoor cooking grills. Prepared declaration on claim construction, case settled.

86. Pillsbury, Winthrop Shaw Pittman LLP (Patrick Doody), ***Fellowes, Inc.*** *vs. TreeFrog Developments and Otter Products, LLC;* IPR case involving a housing for encasing a tablet computer or a cell phone. IPR concerns U. S. Patents; 9,660,684; 8,531,834; and 9,498,033. Prepared declarations in support of several IPR reviews. Case pending.

87. Perkins Coie, LLP (Thomas Millikan, Joseph Reid, Kyle Canavera); **HEB, LP** vs Southern Sales & Marketing Group LLP and Home Depot Product Authority LLC: Patent case involving a portable cooler system designed to maintain beverages, food, medical supplies cool for an extended period of time. Prepared Expert Declaration, supported various motions, Deposed 8/19/21, Case settled.

88. Clark Hill PLC (David Gorski): **New Berry Inc**. vs. Macrae Technologies; Patent case involving a plate cooler stave for metal-making furnaces; Provided expert declaration in support of request for ex parte patent reexamination. Case pending.

89. Cozen O'Connor LLP (Thomas Fisher, Barry Golub, Xing Liu),; Phillip Morris vs **Healthier Choices;** Patent IPR case involving an electronic pipe for smoking a combustible material such as tobacco. Prepared declaration, deposed 5/27/2022; case pending.

90. Dentons (Scott Cummings, Debby Sengupta). Whitewater West vs. **American Wave Machines (AWM)**; Four Patent IPR cases involving four AWM patents involving wave generators for recreational pools. Provided expert declarations in support of patent owner's response; cases pending.

91. Miller & Martin PLLC (Stephen Kabakoff, Saba Daneshvar, Eileen Rumsfelt): Smokeware net. LLC v. **Premier Specialty Brands, LLC** Case 1:20-CV-04949-ELR in Northern District of GA, an IPR proceeding before PETAB concerning charcoal grills configured to hold and burn charcoal for cooking food. Prepared declarations on invalidity and infringement as well as rebuttal reports, deposed 11/18/2022; case pending.