

*RESUME*  
*of*  
**Hafiz M. Atassi**

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**EDUCATION**

Doctoral degree in Engineering presented at the Sorbonne, November 15, 1966, University of Paris, Paris, France.

Diploma in Aerospace and Mechanical Engineering, June 1963, Ecole Centrale de Paris, Paris, France.

Licence es Sciences, June 1963, Faculte des Sciences, University of Paris, Paris, France.

Doctoral Dissertation Topics:

First Thesis:        *Study of Heat Transfer from Cylinders in a Rarefied Gas Flow.*  
Advisor: Professor E. A. Brun.

Second Thesis:     *Measurements in Acoustical and Instrumental Music.*  
Advisor: Professor A. Siestrunk.

**PROFESSIONAL EXPERIENCE**

8/1999-present    Viola D. Hank Professor, Department of Aerospace and Mechanical Engineering, University of Notre Dame, Notre Dame, Indiana

9/1978-8/1999    Professor, Department of Aerospace and Mechanical Engineering University of Notre Dame, Notre Dame, Indiana

9/1987-8/1997    Director, Center for Applied Mathematics University of Notre Dame, Notre Dame, Indiana.

9/1987-8/1995    Adjunct Professor, School of Mechanical Engineering Purdue University, West Lafayette, Indiana.

5/1988-8/1988  
5/1991-7/1991  
5/1993-7/1993 Visiting University Professor, Ecole Centrale, Centre National de la  
5/1998-6/1998 Recherche Scientifique and University of Lyon, Lyon, France.  
5/2002-7/2002

9/1983-9/1984 Addison P. Rothrock Distinguished Scientist  
NASA Lewis Research Center, Cleveland, OH.

9/1974-9/1978 Associate Professor, Department of Aerospace and Mechanical Eng.  
University of Notre Dame, Notre Dame, IN.

9/1969-9/1974 Assistant Professor, Department of Aerospace and Mechanical Eng.  
University of Notre Dame, Notre Dame, IN.

8/1967-9/1969 Research Associate, Graduate School of Aerospace Engineering  
Cornell University, Ithaca, NY.

1/1967-7/1967 Research Engineer, Office National d'Etudes et de Recherches  
Aerospaciales (ONERA), Chatillon, France.

9/1963-1/1967 Attache de Recherche, Centre National de la Recherche Scientifique  
Paris, France; and Teaching Fellow at Faculte des Sciences,  
University of Paris, Paris, France.

6/1963-9/1963 Engineer, Schlumberger Company, Karlsruhe, Germany.

1/1963-3/1963 Engineer Trainee, Centre d'Etudes Nucleaires de Saclay  
9/1962- 9/1962 Saclay, France.

## HONORS

- *Rayleigh Lectureship, American Society of Mechanical Engineers* (2004).
- *American Society of Mechanical Engineers Lewis F. Moody Award* (2001).
- *American Institute of Aeronautics and Astronautics Aeroacoustics Award* (2000).
- *Fellow of the American Institute of Aeronautics and Astronautics* (1996).
- *International Aircraft Fund Award, University of Tokyo, Tokyo, Japan* (1996).
- *Chevalier de l' Ordre des Palmes Academiques, Office of the Prime Minister of France, Decree of July 16, 1993 , Official Journal of the Republic of France.*
- *Chairman, International Symposium on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity in Turbomachines, Notre Dame, IN* (9/1991).

- *Chairman of the Scientific Committee*, IUTAM Symposia on Unsteady Aerodynamics and Aeroelasticity (1989-1994).
- *Fellow of the American Society of Mechanical Engineers* (1989).
- *Chairman, Structure and Dynamics Committee*, American Society of Mechanical Engineers, Gas Turbine Division (1984-1986).
- *Addison P. Rothrock Distinguished Scientist*, NASA Lewis Research Center (9/1983-9/1984).

## LISTINGS

Who's Who in Aviation, 1st Edition

## ACADEMIC COURSES TAUGHT

### Undergraduate Courses

Aerodynamics I  
 Aerodynamics II  
 Applied Linear Analysis  
 Compressible Flow  
 Fluid Mechanics (Course Director 1978-1985).  
 Ideal Aerodynamics  
 Introduction of Aerospace Sciences  
 Senior Design  
 Supersonic Aerodynamic Laboratory  
 Theory of Fan Design  
 Viscous Flow

### Graduate Courses

Advanced Aerodynamics  
 Advanced Applied Mathematics  
 Advanced Topics in Aerospace Engineering  
 Aeroacoustics  
 Aeroelasticity  
 Convective Heat Transfer  
 Ideal Fluid I  
 Ideal Fluid II  
 Introduction to Acoustics and Noise Control

Kinetic Theory of Gases  
Mathematical Methods I  
Mathematics Methods II  
Nonlinear Methods in Fluid Mechanics and Heat Transfer  
Rarefied Gas Dynamics and Hypersonic Flows  
Unsteady Aerodynamics and Aeroacoustics

## DIRECTED DISSERTATIONS

- Douglas Berg, “*Effect of Loading on the Sound Generated by an Airfoil Subject to a Gust,*” M.S.M.E., August 1975.
- Dennis J. Gleason, “*An Investigation of the Effects of Shape and Incidence on the Instability of Airfoil Pitching Oscillations,*” M.S.A.E., August 1976.
- Robert J. Dieckelman, “*Flutter Analysis of a Single Degree of Freedom Airfoil System Undergoing a Pitching Oscillation,*” M.S.A.E., August 1978.
- Ghassan M.F. Hamad, “*Unsteady Forces Acting Upon a Lifting Airfoil with Thickness in a Transverse and Longitudinal Gust,*” M.S.A.E., May 1979.
- William H. Newman, “*A Two-Dimensional Potential Flow Model for Ground- Induced Effects on Jet and Fan Inlets,*” M.S.M.E., May 1979.
- Dartzi Pan, “*Flutter Analysis of a Two-Dimensional Turbine Cascade at Low Mach Number,*” M.S.M.E., August 1979.
- Ghassan M.F. Hamad, “*Sound Generation in a Cascade of Airfoils by Three- Dimensional Disturbances Convected in a Subsonic Flow,*” Ph.D., May 1981.
- Dinesh Naik, “*Modelling of Cross-Flow Fans,*” M.S.M.E, May 1983.
- Glenn A. Gebert, “*Unsteady Vortical disturbances Around a Thin Airfoil in Compressible Flow in the Presence of a Three-Dimensional Periodic Gust,*” M.S.A.E., May 1986.
- Laura A. Traxler, “*Unsteady Lift Characteristics of an Airfoil in Three-Dimensional Periodic Gust,*” M.S.A.E., May 1986.
- William W. Romer, “*Oscillating Airfoil in a Separated Flow,*” M.S.A.E., August 1987.
- Jisheng Fang, “*Trailing Vortex Interaction with a Thin Airfoil,*” M.S.A.E., May 1988.
- James J. Harrington, “*Aeroelastic Analysis of an Airfoil in Pitch with Nonlinear Aerodynamic Loads,*” M.S.A.E., August 1988.
- Glenn A. Gebert, “*Modification of Turbulent Boundary Layers by Streamlined Devices,*” Ph.D. , May 1989.
- Mukund Dusey, “*Acoustic Radiation from a Thin Airfoil in Nonuniform Subsonic Flow,*” M.S.A.E., May 1989.

- James Russel Scott, “*Compressible Flows with Periodic Vortical Disturbances Around Lifting Airfoils,*” Ph.D., May 1990.
- Shankar Subramaniam, “*Acoustic Radiation from Arbitrary Lifting Airfoils,*” M.S.A.E., May 1990.
- Carl Feng-Long Zhang, “*Sound Radiated from a Thin Airfoil at Supersonic Speed,*” M.S.M.E., July 1990.
- Jisheng Fang, “*Compressible Flows with Vortical Disturbances Around a Cascade of Airfoils,*” Ph. D., May 1991.
- Catherine Davis, “*The Acoustic Directivity from Airfoils in Nonuniform Subsonic Flows,*” M.S.A.E., May 1992.
- Eric Augier, “*Analytical and Experimental Study of Energy Density Spectra of a Manipulated Turbulent Boundary Layer,*” Ph.D. (University of Lyon ), co- advisor, R. Morel, March 1992.
- Sheryl Marie Patrick, “*The Acoustic Directivity from Airfoils in Nonuniform Subsonic Flows,*” M.S.A.E., May 1993.
- Srinivasan Subramaniam, “*Experimental and Computational Studies on Propeller Noise to Inflow Distortion,*” Ph.D., co-advisor T.J. Mueller, May 1993.
- Helen Simon, “*The Acoustic Directivity from Airfoils in Nonuniform Subsonic Flows- Experimental Study,*” M.S.M.E., (University of Lyon ), co-advisor J. Bataille, January 1994.
- Christine Marie McCoy, “*A Study of the Optimization of the Aerodynamic and Acoustic Responses of a Cascade,*” M.S.A.E., August 1995.
- Sheryl Marie Patrick, “*An Inverse Problem for a Nonuniform Subsonic Flow Interacting with a Body and Radiating Sound,*” Ph. D., May 1995.
- Bruce Hardy, “*Interaction of Acoustic, Entropic and Vortical Waves with a Plane Shock,*” M.S.A.E., August 1996.
- Jeffrey Scherock, “*Modelling Potential Flows in Coupled Cascades,*” M.S.A.E., August 1996.
- Vladimir D. Golubev, “*Acoustical and Rotational Waves in Swirling Flows,*” Ph.D., May 1996.
- Andrey Lipatov, “*Broadband Noise from Impinging Turbulence Interacting with a Blade Row,*” Ph.D. May 1998.
- Amr Ali, “*Aeroacoustics and Stability of Swirling Flows,*” Ph.D. , December 2001.
- Daniel Monahan, “*A Numerical Investigation of High Frequency Unsteady Aerodynamics of Cascades,*” M.S.A.E., July 2002.

- Basman El-Hadidi, “*Sound Generation and Propagation in Annular Cascades with Swirling Flows*,” Ph.D., May 2003.
- Igor Vinogradov, “*Tonal and Broadband Noise Generation and propagation in Fan Engines*,” Ph.D., May 2006.
- Wenglaon Zhang, “*Fluid Structure Interaction in Elastic Duct with Swirling Flows*,” Ph.D., May 2010.
- Michaela M. Logue, “*Sound Generation and Scattering in Turbofan Engines*,” Ph.D., May 2010.

## **POST DOCTORAL COLLABORATORS**

- Dr. David DaCunha (1975-1977)
- Dr. Terrence J. Akai (1977-1979)
- Dr. Young-Nam Kim (1979-1980)
- Dr. Janusz Grzedzinski (1980-1983)
- Dr. Jisheng Fang (1991-1995)
- Dr. Eric Augier (1992-1994)
- Dr. Pascal Ferrand (1993-1994)
- Dr. Stephane Aubert (5/1995-10/1995)
- Dr. Sheryl M. Patrick (5/1995-10/1995)
- Dr. Romeo F. Susan-Resiga (7/1996-9/1999)
- Dr. Vladimir V. Golubev (6/1997-9/1999)
- Dr. Michael Fitzmaurice (2/1999-10/1999)
- Dr. Yahia Abdelhamid (4/1999-9/2000)
- Dr. Mahmoud Hamadiche (6/1999-9/2000)
- Dr. Romeo F. Susan-Resiga (6/2000-present)
- Dr. Amr Ali (1/2002-10/2002)
- Dr. Basman Elhadidi (1/2003-11/2003)
- Dr. Michaela M. Logue (6/2010-9/2012)
- Dr. Alexey Kozlov (9/2010-10/2011)

## **UNIVERSITY COUNCILS AND COMMITTEES**

- Faculty Senate, 1975-1977, 2001-present.
- Committee on Appointments and Promotions , Department of Aerospace and Mechanical Engineering, 1975-1978, 1980-1983, 1984-1987, 1987-1990, 1990-1993, 1993-1996, 2001-present.
- Various Departmental Committees.
- College Council, 1985-1987.
- Chairman, Committee for the Establishment of an Applied Mathematics Center at Notre Dame, 1985-1987.
- Chairman, Department Committee on Computer Policy, 1989-1993.
- Academic Council, 1993-1996.
- Engineering College Council, 1993-1996.
- Faculty Senate, (ex-off.), 1993-1994.
- Chairman, Faculty Affairs Committee, Academic Council, 1993-1994.
- Executive Committee, Academic Council, 1994-1995.
- Provost Advisory Committee, 1994-1996.
- Faculty Senate, (ex-off.), 1995-1996.
- Provost Search Committee, 1995-1996.

## **EDITING AND REVIEWING**

- American Institute for Aeronautics and Astronautics Journal, Associate Editor for Aeroacoustics and Aerodynamics (2000-2003).
- Applied Mechanics Reviews Editorial Board, Associate Editor for Aerodynamics and Aeroelasticity (1985-1995)
- Reviewer for:
  - Journal of Fluid Mechanics
  - Journal of Sound and Vibration
  - The Physics of Fluids
  - AIAA Journals
  - ASME Journals
  - Journal de Mécanique
  - SIAM Journals

## **CONSULTING AND ADVISORY ACTIVITIES**

- Senior Staff Member, the Radiation Laboratory, Notre Dame, Indiana, (1972– 1980).

- Guest Scientist, NASA Lewis Research Center, Cleveland, Ohio, (1974–1976).
- Wheel Horse Products, Inc., South Bend, Indiana ,(1978–1988).
- Whirlpool Company, Benton Harbor, Michigan, (1975–1992).
- National Science Foundation, Engineering Research Centers Division, Washington, D.C., (1989–present).
- United States Navy David Taylor Research and Development Center, Bethesda, MD, (1991–present).
- Massachusetts Institute of Technology Charles Draper Laboratory, Cambridge, MA, (1993-1996).
- Vehicle Control Technology, Burke, VA, (1995-2000).
- Cambridge Acoustical Associates, Medford, MA(1996-1999).
- Pratt & Whitney, Hartford, Connecticut(1998-2002).
- Ohio Aerospace Institute NASA-Industry Aeroacoustics Consortium, Cleveland, Ohio (2000-2009).
- NTI Corporation, Meadowcroft, Maryland (2001-present).
- Applied Physical Sciences, New London, Connecticut (2005-present).
- Department of Defense Strategic Environmental R&D Program (2006-present).

## **PROFESSIONAL SOCIETY MEMBERSHIP**

- Fellow of the American Institute of Aeronautics and Astronautics.
- Member of the Order of “*Chevaliers des Palmes Academiques.*”
- Fellow of the American Society of Mechanical Engineers.
- Member of the International Institute of Sound and Vibration.
- Member of the American Physical Society.
- Member of the Society for Industrial and Applied Mathematics.
- Member of the Association des Anciens Eleves de L’Ecole Centrale de Paris.

## **PROFESSIONAL SOCIETY ACTIVITIES**



- Member of the “*Steering Committee of the Fluid Mechanics Midwestern Group,*” (1974-1983).
- Member of the “*Structures and Dynamics Committee,*” Gas Turbine Division, American Society of Mechanical Engineers (1976-present).
- Chairman of the “*St. Joseph Valley Section of the American Institute of Aeronautics and Astronautics,*” (1978-1979).
- Member of the “*Structural Dynamics Committee, American Institute of Aeronautics and Astronautics,*” (1979-1982).
- Liaison Member between the “*Aeroacoustics and the Structural Dynamics Committees,*” American Institute of Aeronautics and Astronautics, (1979-1982).
- Co-organizer of “*the 1979 American Physical Society Meeting, Division of Fluid Dynamics,*” Notre Dame, Indiana, (November 1979).
- Organizer and Chairman of the “*Fluid Mechanics Midwestern Retreat Geneva Center,*” Indiana (April 1982).
- Vice-Chairman of “*the Structure and Dynamics Committee,*” Gas Turbine Division, American Society of Mechanical Engineers, (1982-1984).
- Organizer of a minisymposium on “*Flutter and Component Vibration,*” International Gas Turbine Conference, Phoenix, Arizona (March 1983).
- Vice-Chairman, “*Fluid Mechanics Midwestern Retreat,*” Geneva Center, Indiana (April 1983).
- Chairman of “*the Structure and Dynamics Committee,*” American Society of Mechanical Engineers, Gas Turbine Division (1984-1986).
- Chairman of “*the Honors and Awards Committee on Structural Dynamics,*” American Society of Mechanical Engineers (1987-2001).
- Member of “*the Scientific Committee,*” IUTAM Symposia on Unsteady Aerodynamics and Aeroelasticity (1987-present).
- Chairman of “*the Scientific Committee,*” IUTAM Symposia on Unsteady Aerodynamics and Aeroelasticity (1989-1994).
- Chairman, “*International Symposium on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity in Turbomachines,*” Notre Dame, IN (9/1991).
- Member of “*the Aeroacoustics Committee, American Institute of Aeronautics and Astronautics,*” (1992-1995).

- Chairman of “*the Honors and Awards Committee of the American Institute of Aeronautics and Astronautics Aeroacoustics Division,*” (1994-1995).
- Member of “*the Scientific Committee,*” International Congress on Fluid Dynamics and Propulsion, ASME International(1996-2000).
- Member of “*the Annual Meeting Scientific Organizing Committee,* American Physical Society, Fluid Dynamic Division, (1998-1999).
- Member of “*the Scientific Committee,*” International Symposia on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity in Turbomachines, Ecole Centrale, Lyon, France (1999-2003).
- Member of “*the Scientific Committee,*” International Symposia on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity in Turbomachines, Duke University, Raleigh, North Carolina (2003-2006).
- Member of “*the Scientific Committee,*” International Symposia on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity in Turbomachines, Central Institute of Aviation Motors, Moscow, Russia (2006-2009).
- Chairman of “*the Honors and Awards Subcommittee of the American Institute of Aeronautics and Astronautics Aeroacoustics Committee,*” (2007-present).
- Member of “*the Scientific Committee,*” International Symposia on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity in Turbomachines, Imperial College, London, UK (2009-present).
- Member of “*the Scientific Committee,*” IUTAM Symposium on Computational Aero-Acoustics for Aircraft Noise Prediction, University of Southampton, Southampton, UK (2009-1010).

## ORGANIZATION AND CHAIRING OF TECHNICAL SESSIONS

- Chairman of the Technical Session, “*General Fluid Dynamics,*” American Physical Society Meeting, Notre Dame, Indiana (November 1979).
- Chairman of the Technical Sessions on “*Blade Flutter,*” International Gas Turbine Conference, Houston, Texas (March 8-12, 1981).
- Co-Chairman of the Technical Session, “*Fluid Mechanics,*” Ninth U.S.National Congress of Applied Mechanics, Cornell University, Ithaca, NY.(June 21-25, 1982).

- Chairman of the Technical Sessions on “*Flutter and Component Vibration, I and II*,” International Gas Turbine Conference, Phoenix, Arizona (March 1983).
- Chairman of the Technical Session, “*Turbomachinery Stability*,” AIAA/ASME/ASCE/AHS Structures, Structural Dynamics and Materials Conference, Lake Tahoe, Nevada (May 1983).
- Chairman of the Technical Session, “*Unsteady Flows in Turbomachinery*,” International Gas Turbine Conference, Amsterdam, The Netherlands (June 1984).
- Co-Chairman of the Technical Session on, “*Component Vibrations*,” International Gas Turbine Conference, Houston Texas (March 1985).
- Co-Chairman of the Technical Session on, “*Fracture and Fatigue*,” International Gas Turbine Conference, Houston, Texas (March 1985).
- Chairman of the Technical Session on “*Flutter and Forced Response I*,” International Gas Turbine Conference, Dusseldorf, West Germany (June 1986).
- Co-Chairman of the Technical Session on “*Flutter and Forced Response II*,” International Gas Turbine Conference, Dusseldorf, West Germany (June 1986).
- Chairman of the Technical Session on “*Unsteady Aerodynamics of Oscillating Axial-Flow Cascades with Uniform Inlet Flow, Theory and Experiments*,” Fourth IUTAM Symposium on Unsteady Aerodynamics and Aeroelasticity of Turbomachines and Propellers, Aachen, West Germany (September 1987).
- Chairman of the Technical Session on “*Flutter and Forced Response I*,” International Gas Turbine Conference, Amsterdam, the Netherlands (June 1988).
- Chairman of the Panel Session : “*Unsteady Aerodynamics and Aeroelasticity*,” International Gas Turbine Conference, Amsterdam, the Netherlands (June 1988).
- Chairman of the Technical Session on “*Flutter and Forced Response I*,” International Gas Turbine Conference, Brussels, Belgium (June 1990).
- Chairman of the Plenary Session on “*Unsteady Aerodynamics Methods for Aeroelastic and Aeroacoustic Applications*,” Sixth International Symposium on Unsteady Aerodynamics and Aeroelasticity of Turbomachines and Propellers, Notre Dame, Indiana (September 1991).
- Chairman of the Technical Session on “*Unsteady Turbomachine Flows: A Source of Noise and Vibrations*,” Second Latin American Conference on Turbomachinery Cuernavaca, Morelos, Mexico, (February 15-18, 1993).
- Chairman of the Technical Session on “*Turbomachinery Source Noise*,” 15th American Institute of Aeronautics and Astronautics Aeroacoustic Conference, Long Beach, California, (October 25-27, 1993).

- Chairman of the Technical Session on “*Unsteady Aerodynamics,*” ASME International Gas Turbine and Aeroengine Congress and Exposition, The Hague, Netherlands, (June 13-16, 1994).
- Chairman of the Technical Session on “*Gust Response and Rotor-Stator Interaction Experiments and Theories,*” Seventh International Symposium on Unsteady Aerodynamics and Aeroelasticity of Turbomachines, Fukuoka, Japan, (September 25-29, 1994).
- Chairman of the Technical Session on “*Aeroacoustics: The Role of the Mathematician,*” Symposium on Future Trends in Applied Mathematics, Notre Dame, Indiana, (April 1996).
- Chairman of the Technical Session “*Aeroacoustics,*” International Congress on Fluid Dynamics and Propulsion Cairo, Egypt, (December 30, 1996).
- Chairman of the Technical Session on “*General Aeroacoustics,*” AIAA Aerospace Sciences Meeting, Reno, Nevada, (January 8, 1997).
- Chairman of the Technical Session on “*Unsteady Aerodynamics,*” 8th International Symposium on Unsteady Aerodynamics and Aeroelasticity in Turbomachines, Stockholm, Sweden, (September 17, 1997).
- Chairman of the Technical Session on “*Duct Acoustics,*” 4th AIAA/CEAS Aeroacoustic Conference, Toulouse, France, (June 3, 1998).
- Chairman of the Technical Session on “*Turbomachinery and Core Noise,*” 5th AIAA/CEAS Aeroacoustic Conference, Seattle, Washington, (May 11, 1999).
- Chairman of the Technical Session on “*Turbomachinery and Core Noise,*” 5th AIAA/CEAS Aeroacoustic Conference, Seattle, Washington, (May 11, 1999).
- Chairman of the Technical Session on “*Acoustics ,*” American Physical Society Meeting, New Orleans, Louisiana, (November 22, 1999).
- Chairman of the Technical Session on “*Rotating Flows,*” American Physical Society Meeting, New Orleans, Louisiana, (November 24, 1999).
- Chairman of the Technical Session on “*Rotorcraft and V/STOL Noise,*” 6th AIAA/CEAS Aeroacoustic Conference, Westin Maui, Hawaii, (June 12-14, 2000).

- Chairman of the Technical Session on “*Aeroacoustics Fields*,” 9th International Symposium on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity in Turbomachines, Lyon, France, (September 4-8, 2000).
- Chairman of the Technical Session on “*Duct Acoustics*,” 7th AIAA/CEAS Aeroacoustic Conference, Maastricht, The Netherland, (May 28-31, 2001).
- Chairman of the Technical Session on “*Unsteady Aerodynamics*,” 10th International Symposium on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity in Turbomachines, Duke University, Durham, North Carolina, (September 8-11, 2003).
- Chairman of the Opening Session of the 11th International Symposium on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity in Turbomachines, TSAGI, World Trade Center, Moscow, Russia (September 5, 2006).

## RESEARCH INTERESTS AND ACTIVITIES

Professor Atassi has been teaching and conducting basic and applied research in fluid mechanics, aerodynamics, aeroacoustics, aeroelasticity, fluid-structure interaction, heat transfer, and developing mathematical and computational methods for modeling related physical phenomena. After completing his doctoral degree at the University of Paris, he worked as a research engineer at ONERA (France) and then joined the faculty at Cornell University and later the University of Notre Dame where he holds the Viola D. Hank Chair of Aerospace and Mechanical Engineering. He is the founding director of the Center for Applied Mathematics at the University of Notre Dame(1987-1997). Professor Atassi has made significant contributions to the understanding and modelling of unsteady high speed flow phenomena, the aeroacoustics of nonuniform flows, and fluid-structure interaction in rigid and elastic ducts with application to flutter, forced vibrations, and noise of aircraft wing and engine components and marine propellers. He is the author of more than 150 technical papers and has given more than 90 invited lectures in the United States, Canada, Europe, Japan, and Mexico. Professor Atassi has chaired the Sixth International Symposium on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity of Turbomachines and Propellers. Numerous post-doctoral collaborators and graduate students have worked with Professor Atassi on his research projects. In addition, Professor Atassi closely collaborates with his colleagues at Notre Dame and with scientists and engineers at NASA Glenn and Langley Research Centers, the Air Force Aeropropulsion Laboratory, the Air Force Academy, Purdue University where he is an adjunct professor, the Ecole Centrale at the University of Lyon and the Laboratoire de Mecanique de Fluides et d’Acoustique du Centre National de la Recherche Scientifique where he is frequently a visiting University Professor. In addition, he is consultant to the National Science Foundation, Engineering Center Division, The United States Navy David Taylor Research and Development Center, MIT Draper Laboratory, the Ohio

Aerospace Institute and to various companies . Professor Atassi also maintains a close working relationship with many institutions in the United States, England, France, Germany, Japan, Poland, Russia and Switzerland.

## RESEARCH GRANTS

Dr. Atassi is or was principal investigator on all grants and contracts listed below. Co-investigators are listed when applicable.

*“Undergraduate Research and Training Program in Fluid Mechanics,”* National Science Foundation, June 1972 - September 1973(\$10,000).

*“Propagation of Shock Waves in Superheated Fluids Produced by Intense Laser Radiations,”* Energy Research and Development Administration, June 1973 - September 1976(\$45,000).

*“Study of CFS Separator and Particle Interference,”* Wheelabrator Frye, Inc. Co- Investigator, R. Brach, October 1973 - September 1974(\$10,910).

*“Unsteady Aerodynamic Forces on Cambered Airfoils Moving Through Gusts at Arbitrary Angles of Incidence,”* United States Air Force Office of Scientific Research, AFOSR-74-2675A, January 1974 - January 1975(\$29,720).

*“Influence of Blade Loading on the Acoustics Response of a Cascade,”* National Aeronautics and Space Administration, NSG 3037, January 1974 - April 1977(\$56,116).

*“Unsteady Aerodynamic forces on Cambered Airfoils Moving Through Gusts at Arbitrary Angles of Incidence,”* United States Air Force Office of Scientific Research, AFOSR-75-2675A, January 1975 - January 1976(\$28,760).

*“Unsteady Aerodynamic Forces on Cambered Airfoils and on Cascades Oscillating or Subject to Periodic Gusts,”* United States Office of Scientific Research, AFOSR-76- 2675B, January 1976 - August 1977(\$47,642).

*“Unsteady Aerodynamic Forces on Cambered Airfoils and on Cascades Oscillating or Subject to Periodic Gusts,”* United States Office of Scientific Research, AFOSR-77- 2675B, August 1977 - September 1978(\$43,013).

*“Investigation of Cross-Flow Fans,”* The Whirlpool Corporation, September 1977 - September 1978(\$8,035).

*“Investigation of Cross-Flow Fans,”* The Whirlpool Corporation, September 1978 - August 1979(\$8,395).

*“Aerodynamic Mechanism for Noise Generated by Rotor-Stator Interaction,”* National Aeronautics and Space Administration, NSG-I-3195, May 1978 - September 1981(\$103,719).

*“Design and Investigation of Cross-Flow Fans,”* The Whirlpool Corporation September

1979 - August 1980(\$8,750).

*“Aerodynamics of Cascaded Airfoils Oscillating or Subject to Three-Dimensional Periodic Gusts,”* United States Air Force Office of Scientific Research, AFOSR-F49620-79-C-0014 September 1978 - December 1980(\$105,000).

*“Design and Investigation of Cross-Flow Fans,”* The Whirlpool Corporation, September 1980 - August 1981(\$9,250).

*“Aerodynamic of Airfoils Subject to Three-Dimensional Periodic Gusts,”* United States Air Force Office of Scientific Research, AFOSR-81-0084, January 1981 - June 198(\$60,220).

*“Potential Flow Theory of Cross-Flow Fans,”* The Whirlpool Corporation, September 1981 - August 1982(\$11,700).

*“Aerodynamics of Airfoils Subject to Three-Dimensional Periodic Gusts,”* United States Air Force Office of Scientific Research, AFOSR-82-0269, July 1982 - August 1983(\$65,179).

*“Aerodynamic Mechanism for Noise Generated by Rotor-Stator Interaction,”* National Aeronautics and Space Administration, NSG-II-3195, September 1981 - August 1983(\$65,578).

*“Addison P. Rothrock Distinguished Scientist,”* NASA Lewis Research Center, September 1983 - September 1984(\$58,389).

*“Effects of Nonuniform Flows on the Aerodynamics and Noise Radiation of Advanced Turboprops,”* National Aeronautics and Space Administration Lewis Research Center, NCC 3-48, January 15, 1985 - January 14, 1986(\$29,689).

*“Alteration of Three-Dimensional Vorticity Waves by Airfoils Acting as Large Eddy Breakup Devices,”* National Aeronautics and Space Administration Langley Research Center, Addendum to NCC 3-48, April 15, 1985 - December 31, 1985(\$41,000).

*“Modification of the Turbulent Boundary Layer Structure by Large-Eddy Breakup Devices,”* National Aeronautical and Space Administration Langley Research Center, NAG-1-21361, January 1, 1986-December 31, 1986(\$25,000).

*“Effects of Nonuniform Flows on the Aerodynamic and Noise Radiation of Advanced Turboprops,”* National Aeronautical and Space Administration Lewis Research Center, NAG-3-732, April 15, 1986 - April 14, 1987(\$45,388).

*“Effects of Nonuniform Flows on the Aerodynamic and Noise Radiation of Advanced Turboprops,”* National Aeronautical and Space Administration Lewis Research Center, NAG-3-732, Supplement 2, April 15, 1987 - April 14, 1988(\$30,598).

*“Effects of Nonuniform Flows on the Aerodynamic and Noise Radiation of Advanced Turboprops,”* National Aeronautical and Space Administration Lewis Research Center, NAG-3-732, Supplement 3, June 30, 1986 - April 14, 1988(\$28,852).

*“Aero-Thermodynamic Distortion Induced Structural Dynamic Response of Multistage Tur-*

*bomachine Blading*,” United States Air Force Office of Scientific Research, AFOSR- F49620-88-C-0022 , November 15, 1987 - January 14, 1989(\$70,752).

“*Effects of Nonuniform Flows on the Aerodynamic and Noise Radiation of Advanced Turboprops*,” National Aeronautical and Space Administration Lewis Research Center, ‘NAG 3-732, Supplement 4, April 15, 1988 - February 14, 1989(\$55,315).

“*Aero-Thermodynamic Distortion Induced Structural Dynamic Response of Multistage Turbomachine Blading*,” United States Air Force Office of Scientific Research, AFOSR- F49620-89-C-0022 , January 15, 1989 - January 14, 1991(\$156,685).

“*Effects of Nonuniform Flows on the Aerodynamic and Noise Radiation of Advanced Turboprops*,” National Aeronautical and Space Administration Lewis Research Center, NAG 3-732, Supplement 5, February 15, 1990 - December 14, 1990(\$55,936).

“*Analysis of Large Structure Turbulence on Turbomachine Blades*,” David W. Taylor Research and Development Center and Office of Naval Research, N00014- 89J17830P0000, June 15, 1989 - December 31, 1989(\$71,000).

“*Computer Graphic Laboratory*,” National Science Foundation, CTS-9006780, May 15 1990 - November 15, 1992 (Co-Investigators S. Paolucci, V.W. Nee, M. Sen, F. Thomas, and K.T. Yang)(\$35,000).

“*Effects of Nonuniform Flows on the Aerodynamic and Noise Radiation of Airfoils and Cascades*,” National Aeronautical and Space Administration, Lewis Research Center, NAG 3-732, Supplement 6, December 15, 1990 - December 14, 1991(\$68,513).

“*Analysis of Large Structure Turbulence on Turbomachine Blades*,” David W. Taylor Research and Development Center and Office of Naval Research, N00014-89J178300002, July 15, 1989 - December 1, 1991(\$55,000).

“*International Symposium on Unsteady Aerodynamics, Aeroelasticity and Aeroacoustics in Turbomachines and Propellers*,” National Aeronautical and Space Administration Lewis Research Center, NAG 3-1294, August 1, 1991 - July 31, 1992(\$5,000).

“*International Symposium on Unsteady Aerodynamics, Aeroelasticity and Aeroacoustics in Turbomachines and Propellers*,” United Technologies Research Center, June 1, 1991 - July 31, 1992(\$3,000).

“*International Symposium on Unsteady Aerodynamics, Aeroelasticity and Aeroacoustics in Turbomachines and Propellers*,” General Electric Company, July 1, 1991 - July 31,1992(\$3,000).

“*Hydrodynamics and Acoustics of Rotor Blades in Nonuniform Inflow Conditions*,” Office of Naval Research, N00014-92-J-1165-P0001, November 16, 1991 - November 15, 1992(\$94,064).

“*Effects of Nonuniform Flows on the Aerodynamic and Noise Radiation of Airfoils and Cascades*,” National Aeronautical and Space Administration Lewis Research Center, NAG 3-732, Supplement 7, December 15, 1991 -December 14, 1992(\$63,994).



*“Effects of Nonuniform Flows on the Acoustics and Noise Radiation of Airfoils and Cascades,”* National Aeronautical and Space Administration, Lewis Research Center, NAG 3-732, Supplement 8, December 15, 1991 - December 14, 1992(\$70,000).

*“Effects of Nonuniform Flows on the Acoustics and Noise Radiation of Airfoils and Cascades,”* National Aeronautical and Space Administration Lewis Research Center, NAG 3-732, Supplement 9, May 15, 1991 - December 14, 1992(\$22,980).

*“Hydrodynamics and Acoustics of Rotor Blades in Nonuniform Inflow Conditions,”* Office of Naval Research, N00014-92-J-1165-P0002, November 15, 1992 - November 14, 1993(\$70,000).

*“Effects of Nonuniform Flows on the Acoustics and Noise Radiation of Airfoils and Cascades,”* National Aeronautical and Space Administration Lewis Research Center, NAG 3-732, Supplement 10, December 15, 1992 - December 31, 1993(\$138,107).

*“Hydrodynamics and Acoustics of Rotor Blades in Nonuniform Inflow Conditions,”* Office of Naval Research, N00014-92-J-1165-P0003, November 15, 1993 - November 14, 1994(\$90,000).

*“Effects of Nonuniform Flows on the Acoustics and Noise Radiation of Airfoils and Cascades,”* National Aeronautical and Space Administration, Lewis Research Center, NAG 3-732, Supplement 11, January 1, 1994 - January 31, 1995(\$117,657).

*“Hydrodynamics and Acoustics of Rotor Blades in Nonuniform Inflow Conditions,”* Office of Naval Research, N00014-92-J-1165-P0005, November 15, 1994 - November 14, 1995 (\$100,000).

*“Multidisciplinary Fluid -Structure Interaction,”* IBM SUR Grant, June 1994- June 1997(\$175,165).

*“Effects of Nonuniform Flows on the Acoustics and Noise Radiation of Airfoils and Cascades,”* National Aeronautical and Space Administration Lewis Research Center, NAG 3-732, Supplement 12, February 1, 1995 - September 30, 1997(\$172,178).

*“A Domain Decomposition-Based Numerical Laboratory and Multidisciplinary Application in Fluid-Structure Interaction,”* National Science Foundation, October 1, 1995 - September 30, 1998(\$284,311).

*“Hydrodynamics and Acoustics of Rotor Blades in Nonuniform Inflow Conditions,”* Office of Naval Research, N00014-92-J-1165-P0006, November 15, 1995 - November 14, 1996 (\$91,125).

*“Hydrodynamics and Acoustics of Rotor Blades in Nonuniform Inflow Conditions,”* Office of Naval Research, N00014-92-J-1165-P0007, November 15, 1996 - September 30, 1998 (\$192,336).

*“Hydrodynamics and Acoustics of Rotor Blades in Nonuniform Inflow Conditions,”* Office of Naval Research, N00014-92-J-1165-P0007, October 1, 1998 - September 30, 1999 (\$109,928).

*“An Adaptive Parallel Simulation Environment for Aerodynamics and Acoustics,”* National

Science Foundation, October 1, 1998 - September 30, 2003(\$789,622).

*“Hydrodynamics and Acoustics of Rotor Blades in Nonuniform Inflow Conditions,”* Office of Naval Research, N00014-92-J-1165-P0007, October 1, 1999 - March 14, 2002 (\$359,873).

*“Effects of Nonuniform Flows on Sound Generation and Propagation,”* NASA Glenn Research Center, NCC 3 770, January 15, 2000 - September 30,2001, (\$118,727).

*“Hydrodynamics and Acoustics of Rotor Blades in Nonuniform Inflow Conditions,”* Office of Naval Research, N00014-92-J-1165-P0007, March 15, 2002 - August 14, 2005 (\$285,195).

*“Fluid Structure Interaction in Rigid and Elastic Duct with Swirling Flows,”* Office of Naval Research, N00014-07-1-0647, 10/1/2005 - 9/30/ 2008 (\$410,538).

*“A High-Performance-Computing Cluster for Hydroacoustics and Turbulence Research,”* coinventigators, Meng Wang and Scott C. Morris, Office of Naval Research, ’ 000496:Department of Navy, 04/15/2008-4/14/2009 (\$131,798).

*“Study of Fan Tone Noise Prediction,”* Pratt & Whitney, 9/1/2009-12/31/2009, ( \$15,000).

*“Transfer Functions in Hydroacoustics and Structural-Acoustics Interaction,”* Office of Naval Research, N00014-09-1-0522, 02/01/2009-01/31/2012, ( \$487,025).

*“Study of Fan Tone Noise Prediction II,”* Pratt & Whitney, 5/1/2010-12/31/2010, ( \$78,071).

*“Study of Fan Tone Noise Prediction III,”* Pratt & Whitney, 3/1/2010-12/31/2010, ( \$86,874).

## INVITED LECTURES AND SEMINARS

*“Design and Calculation of Axisymmetric Nozzles for Hypersonic Flows,”* Graduate School of Aerospace Engineering, Cornell University, March 5, 1968, Ithaca, New York.

*“Hydrodynamic Description of Rarefied Gas Flows,”* Department of Aerospace and Mechanical Engineering, University of Notre Dame, May 3, 1969, Notre Dame, Indiana.

*“A Unified Kinetic Theory Approach to External Rarefied Gas Flows,”* Graduate School of Aerospace Engineering, Cornell University, August 16, 1972, Ithaca, New York.

*“Effect of Loading on the Unsteady Aerodynamics of Turbomachines Blades,”* Von Karman Institute for Fluid Dynamics, October 26, 1976, Brussels, Belgium.

*“New Developments in Unsteady Airfoil Theory,”* Cambridge University, October 28, 1976, Cambridge, England.

*“European, Japanese and Russian Programs in Aeroelasticity in Turbomachines,”* Joint Air Force, Navy and NASA Conference on Aeroelastic Stability of Fan and Compressor Bladed

Systems, November 17, 1976, Wright Patterson Air Force Base.

*“Aerodynamics of Three-Dimensional Vortical Waves Interacting with Airfoils in Cascade,”* NASA Lewis Research Center, November 14, 1977, Cleveland, Ohio.

*“New Developments in the Unsteady Aerodynamics of Airfoils and Cascades,”* Office National d’Etudes et de Recherches Aerospatiales, April 17, 1978, Paris, France.

*“Unsteady Airfoil Theory and Its Application to Flutter Analysis,”* University of Missouri, April 2, 1979, Rolla, Missouri.

*“Flutter and Stability Analysis of Loaded Turbomachine Blades,”* Detroit Diesel Allison, Division of General Motors, July 31, 1979, Indianapolis, Indiana.

*“Unsteady Aerodynamics: Early and Recent Developments,”* University of Arizona, January 24, 1980, Tucson, Arizona.

*“Interaction of Three-Dimensional Disturbances with Lifting Airfoils,”* Office National d’Etudes et de Recherches Aerospatiales, September 1, 1980, Paris, France.

*“Stability and Flutter Analysis of Turbine Blades at Low Speed,”* University of Paris, September 2, 1980, Orsay, France.

*“Stability and Flutter Analysis of Turbine Blades at Low Speed,”* Von Karmen Institute for Fluid Dynamics, September 4, 1980, Brussels, Belgium.

*“Stability and Flutter Analysis of Turbine Blades at Low Speed,”* University of Aachen, September 5, 1980, Aachen, Germany.

*“European and Japanese Programs in Aeroelasticity in Turbomachines,”* Joint NASA, Air Force, and Navy Conference on Aeroelasticity of Turbine Engines, October 7-29, 1980, NASA Lewis Research Center, Cleveland, Ohio.

*“Recent Developments in the Unsteady Aerodynamics of Airfoils and Cascades,”* University of Houston, March 11, 1981.

*“Unsteady Aerodynamics of Lifting Airfoils,”* NASA Lewis Research Center, December 10, 1981, Cleveland, Ohio.

*“Unsteady Aerodynamics: Early and Recent Developments,”* Ohio State University, May 21, 1982, Columbus, Ohio.

*“Unsteady Vortical Disturbances of Streaming Motions Round Bodies,”* University of Akron, March 20, 1984, Akron, Ohio.

*“Unsteady Vortical Disturbances of Streaming Motions Round Streamlined and Bluff Bodies,”* Cornell University, April 3, 1984, Ithaca, New York.

*“Three-Dimensional Periodic Gusts Interacting with Airfoils,”* United Technology Research Center, April 6, 1984, East Hartford, Connecticut.

*“Unsteady Vortical Disturbances of Streaming Motions Round Streamlined and Bluff Bodies,”* University of Colorado, April 12, 1984, Boulder, Colorado.

*“Aerodynamics of Unsteady Vortical Flows,”* Plenary Lecture, XVII Biennial Fluid Dynamics Symposium, September 1-6, 1985, Warsaw, Poland.

*“Aerodynamics of a Three-Dimensional Gust Interacting with a Lifting Airfoil,”* Unsteady Aerodynamics Lecture, NASA Lewis Research Center, October 31, 1985, Cleveland, Ohio.

*“Three-Dimensional Periodic Gusts Acting Upon Lifting Airfoils,”* David Taylor Naval Ship Research and Development Center, February 4, 1986, Bethesda, Maryland.

*“Aerodynamics of Unsteady Vortical Flows,”* Purdue University, February 21, 1986, West Lafayette, Indiana.

*“Aerodynamics of Unsteady Rotational Flows,”* University of Notre Dame, April 9, 1986, Notre Dame, Indiana.

*“Unsteady Vortical Disturbances Around Bodies,”* Plenary Lecture, Tenth U.S. National Congress of Applied Mechanics, June 18, 1986, Austin, Texas.

*“Unsteady Rotational Disturbances Around Bodies,”* Office National d’Etudes et de Recherches Aérospatiales, September 3, 1987, Chatillon, France.

*“Unsteady Rotational Disturbances Around Bodies,”* Department of Applied Mathematics and Theoretical Physics, Cambridge University, September 18, 1987, Cambridge, England.

*“Modification of the Turbulent Boundary Layer Structure by Streamlined Devices,”* Ecole Centrale de Lyon, University of Lyon, June 30, 1988. Lyon, France.

*“Aerodynamics of Unsteady Vortical Flows,”* Centre National de la Recherche Scientifique, July 4, 1988, Lyon, France.

*“Aerodynamics and Noise of Rotating Blades in Nonuniform Flows,”* Workshop on Unsteady Aerodynamics for Aeroelasticity and Aeroacoustics of Rotating Blades, NASA Lewis Research Center, July 19, 1989, Cleveland, Ohio.

*“Unsteady Flows : The Role of the Mathematician,”* Department of Mathematics, University of Akron, November 9, 1990, Akron, Ohio.

*“Unsteady Aerodynamics and Turbomachine Forced Response,”* Air Force Academy, October 19, 1990, Colorado Springs, Colorado.

*“Unsteady Hydrodynamics and Hydroacoustics,”* David Taylor Research and Development Center, August 9, 1991, Bethesda, Maryland.

*“Aerodynamics and Aeroacoustics of Nonuniform Flows Around Bodies,”* University of California at Los Angeles, January 9, 1992, Los Angeles, California.

*“Aerodynamics and Aeroacoustics of Unsteady Vortical Flows,”* Renault Lecture, 5th Anniversary of the Lyon-Grenoble European Pilote Center for Turbulence, February 18, 1992, Lyon France.

*“Unsteady Aerodynamics of Vortical Flows: Early and Recent Developments,”* Plenary Lecture, Joint Air Force and NASA Symposium on Aerodynamics and Aeroacoustics honoring William R. Sears 80th Birthday, University of Arizona, March 1, 1993, Tucson, Arizona.

*“Unsteady Aerodynamics and Acoustics of Vortical Flows,”* Centre National de la Recherche Scientifique, May 14, 1993, Meudon, France.

*“Unsteady Aerodynamics and Acoustics of Vortical Flows,”* University of Lyon, May 26, 1993, Lyon, France.

*“Unsteady Aerodynamics and Acoustics of Vortical Flows at Transonic Speed,”* NASA Lewis Research Center, November 19, 1993, Cleveland, Ohio.

*“Effects of Nonuniform Flows on the Aerodynamics and Noise of Ducted Fans,”* NASA Lewis Research Center Workshop on Unsteady Aerodynamics for Aeroelasticity and Aeroacoustics of Rotating Blades, “NASA Lewis Research Center, July 21, 1994, Cleveland, Ohio.

*“Aerodynamics and Aeroacoustics of Nonuniform Flows,”* University of Tokyo, October 3, 1994, Tokyo, Japan.

*“Unsteady Transonic Aerodynamics: Application to Turbomachinery,”* National Aerospace Laboratory, October 4, 1994, Tokyo, Japan.

*“Unsteady Aerodynamics and Aeroacoustics of Nonuniform Flows,”* University of Montreal, October 18, 1994, Montreal, Canada.

*“Unsteady Aerodynamics and Aeroacoustics of Swirling Flows,”* Department of Aerospace and Mechanical Engineering, University of Notre Dame, February 1, 1995, Notre Dame, Indiana.

*“Unsteady Euler Computational Methods,”* Workshop on Benchmark of Unsteady Stator-Rotor Flow, The United States Navy David Taylor Model Basin, February 3, 1995, Bethesda, Maryland.

*“Unsteady Aerodynamics and Aeroacoustics of Nonuniform Flows,”* Institute for Computer Applications in Science and Engineering, NASA Langley Research Center, May 26, 1995, Hampton, Virginia.

*“Aeroacoustics of Swirling Flows,”* ASME/JSME Joint Fluid Engineering Conference, August 17, 1995, Hilton Head, South Carolina.

*“Domain Decomposition and Computational aeroacoustics,”* Old Dominion University, May 23, 1996, Norfolk, Virginia.

*“Aeroacoustics of Nonuniform Swirling Flows,”* NASA Langley Research Center, May 24,

1996, Hampton, Virginia.

“*Unsteady Aerodynamics and Aeroacoustics of Nonuniform Flows*,” Central Aero-Hydrodynamic Institute (TsAGI), Russian Academy of Sciences, July 1, 1996, Moscow, Russia.

“*Aeroacoustics and Aerodynamics of Nonuniform Rotational Flows*,” Lectures at the Five National Universities in Japan: Tokyo, Nagoya, Kyoto, Kyushu, and Tokai, August 13 - September 14, 1996, Japan.

“*Aeroacoustics of Nonuniform Flows*,” AIAA Aerospace Sciences Meeting, January 6, 1997, Reno, Nevada.

“*Aeroacoustics and Aerodynamics of Nonuniform Flows with Swirl*,” NASA Workshop on Engine/Nacelle Noise, January 30, 1997, Hampton, Virginia.

“*Inverse Aeroacoustic Problem for a Streamlined Body*,” April 4, 1997, University of Florida, Tallahassee, Florida.

“*Aeroacoustics of Nonuniform Flows*,” April 18, 1997, University of Cincinnati, Cincinnati, Ohio.

“*Unsteady Disturbances in Annular Swirling Flows*,” March 12, 1998, Pratt & Whitney, Hartford, Connecticut.

“*Aeroacoustics of Nonuniform Flows*,” University of Lyon, May 18, 1998, Lyon, France.

“*Aeroacoustics of Nonuniform Flows*,” American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, January 6, 1997, Reno, Nevada.

“*Unsteady Disturbances in Annular Swirling Flows*,” Ecole Centrale de Lyon, May 27, 1998, Lyon, France.

“*Aeroacoustics of Nonuniform Flows*,” Mechanical Engineering, Purdue University, April 29, 1999, West Lafayette, Indiana.

“*Unsteady Disturbances in Annular Swirling Flows*,” Applied Mathematics and Computer Science, Purdue University, April 30, 1999, West Lafayette, Indiana.

“*A Domain Decomposition Method for Aeroacoustics and Aerodynamics*,” NASA Glenn Research Center, August 12, 1999, Cleveland, Ohio.

“*Unsteady Aerodynamics and Acoustics of Swirling Flows*,” Keynote Legendre Lecture, International Symposium on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity in Turbomachines, September 4-8, 2000, Lyon, France.

“*Aeroacoustics and Aerodynamics of Swirling Flow*,” General Electric Company, September 10, 2001, Cincinnati, Ohio.

“*Stability and Propagation of Disturbances in Swirling Flows*,” Johns Hopkins University, September 20, 2001, Baltimore, Maryland.

“*Aeroacoustics of Nonuniform 3D Flows,*” NASA Aeroacoustics Research Consortium, Ohio Aerospace Institute, November 29, 2001, Cleveland, Ohio.

“*Swirling Flow Predictions,*” U.S. Navy David Taylor Research and Development Center, March 19, 2002, Carderock, Maryland.

“*Fundamentals of Fan Aeroacoustics,*” The Boeing Company, April 15, 2002, Seattle, Washington.

“*Aeroacoustics and Aerodynamics of Swirling Flows,*” The Boeing Company, April 16, 2002, Seattle, Washington.

“*Aeroacoustics and Aerodynamics of Swirling Flows,*” University of Lyon and Centre National de la Recherche Scientifique, May 31, 2002, Lyon, France.

“*Multiple Scale Analysis of Turbulence in Rotating Flows,*” University of Cambridge, July 1, 2002, Cambridge, England.

“*Aerodynamics and Aeroacoustics of Nonuniform and Swirling Flows,*” University of Southampton, August 23, 2002, Southampton, United Kingdom.

“*Modeling of High Frequency Noise,*” NASA Aeroacoustics Research Consortium, Ohio Aerospace Institute, November 14, 2002, Cleveland, Ohio.

“*Rotor/Stator Wakes and Blade Response in Swirling Flows,*” U.S. Navy David Taylor Research and Development Center, April 28, 2002, Carderock, Maryland.

“*Effects of Nonuniform Flows on High Frequency Tonal and Broadband Noise,*” NASA Aeroacoustics Research Consortium, Ohio Aerospace Institute, October 21, 2003, Cleveland, Ohio.

“*Fluid-Structure Interaction and Acoustics,*” Raleigh Lecture, ( posted at <http://divisions.asme.org/ncad/forums/index.html>), ASME Annual Meeting, November 16, 2004, Anaheim, California.

“*Sound Radiation from Sources in a Submerged Elastic Duct,*” Emerging Technologies, ASME International Congress and RD & D Expo, Orlando, Florida, November 5-11, 2005.

“*Aerodynamic and Acoustic Response of an Annular Cascade to Turbulence,*” Ecole Centrale and University of Lyon, September 25, 2006, Lyon, France.

“*Three-Dimensional Modelling of Turbofan Broadband Interaction Noise and Comparison with Data,*” NASA Aeroacoustics Research Consortium, Ohio Aerospace Institute, November 16, 2006, Cleveland, Ohio.

“*Modelling Broadband Interaction Noise,*” University of Southampton, Rolls-Royce University Technology Center, December 5, 2006, Southampton, United Kingdom.

“*Hydrodynamics and Acoustics of Rotor Blades in Nonuniform Inflow Conditions,*” Naval

Surface Warfare Center, March 3, 2008, Carderock, Maryland.

*“Sound Radiation from a Propeller in a Submerged Duct,”* University of Missouri Science & Technology, September 25, 2008, Rolla, Missouri.



## PUBLICATIONS

### BOOKS

*Etude du Transfert de Chaleur a Partir de Cylindres Placés dans un Ecoulement de Gaz Rarefié*, Doctoral Thesis, University of Paris Press, 1966.

*Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity of Turbomachines and Propellers*, Springer-Verlag, 1993(editor).

“Unsteady Aerodynamics of Vortical Flows: Early and Recent Developments,” *Aerodynamics and Aeroacoustics*, Editor K. Y. Fung, Ch. IV, pp. 119-169, World Scientific, 1994.

### JOURNAL AND BOOK ARTICLES

“Heat Transfer from Wires in a Rarefied Low-Speed Flow,” *Rarefied Gas Dynamics V*, pp. 1221-1234, Edited by C. L. Brundin, Academic Press, 1967.

“Boundary Conditions for Inviscid Flows over a Solid with Thick Boundary Layer,” co-author B. Monnerie, *Journal Aerospatial*, **127**, pp.123- 137, 1967.

“Hydrodynamic Description of the Rarefied Gas Flow Over a Circular Cylinder in Steady Low-Speed Motion With Heat Transfer,” *Rarefied Gas Dynamics VI*, pp. 805-810. Edited by L. Trillingh and H.Y. Wachman, Academic Press, 1969.

“A Unified Kinetic Theory Approach to External Rarefied Gas Flows, Part 1, Derivation of Hydrodynamic Equations,” co-author, S.F. Shen, “ *Journal of Fluid Mechanics*, **53**, pp. 417-431, 1972.

“A Unified Kinetic Theory Approach to External Rarefied Gas Flows, Part 2, Application to a Steady Low Speed Motion Past a Circular Cylinder,” co-author S.F. Shen, *Journal of Fluid Mechanics*, **53**, pp. 433-499, 1972.

“A Simple Theory for Aerodynamic Forces in Nearly Free-Molecular Flows,” *Rarefied Gas Dynamics VIII*, pp. 344-349, Edited by K. Karamcheti, Academic Press, 1972.

“Numerical Solution of a Time-Dependent Rarefied Gas Flow Past a Cylinder” co-authors V.P. Goddard and A.A. Szewczyk, *Rarefied Gas Dynamics VIII*, pp. 340-343, Edited by K. Karamcheti, Academic Press, 1972.

“A Complete Second Order Theory for the Unsteady Flow About an Airfoil Due to a Periodic Gust,” co-author, M. Goldstein, *Journal of Fluid Mechanics*, **74**, pp. 741-765, 1976.

“Unsteady Aerodynamic Forces Acting on Loaded Two-Dimensional Blades in Nonuniform

Incompressible Flows,” co-author M. Goldstein, *Revue Française de Mécanique*, **10**, pp. 47-56, 1976.

“Aerodynamic and Aeroelastic Characteristics of Oscillating Loaded Cascades at Low Mach Number. Part I: Pressure Distribution, Forces and Moments” co-author, T.J. Akai, ASME Paper No. 79-GT-111. Also, *Journal of Eng. for Power*, **102**, pp. 344-351, 1980.

“Aerodynamic and Aeroelastic Characteristics of Oscillating Loaded Cascades at Low Mach Number. Part II: Stability and Flutter Boundaries” co-author, T.J. Akai, ASME Paper No. 79-GT-112. Also, *Journal of Eng. for Power*, **102**, pp. 351- 356, 1980.

“Three-Dimensional Periodic Disturbances Acting Upon Airfoils in Cascade,” *Aeroelasticity in Turbomachines*, Ed. P. Suter, Juris-Verlag Zurich, pp. 383-398, 1981.

“Stability and Flutter Analysis of Turbine Blades at Low Speed,” co-author T.J. Akai, *Aeroelasticity in Turbomachines*, Ed. P. Suter, Juris-Verlag Zurich, pp. 187-201, 1981.

“The Sears’ Problem for a Lifting Airfoil Revisited - New Results,” *Journal of Fluid Mechanics*, **141**, pp. 109-122, 1984.

“Aerodynamics of Unsteady Vortical Flows,” *Fluid Dynamics Transactions*, Polish Academy of Science, **13**, pp. 1-33, 1986.

“Unsteady Vortical Disturbances Around Bodies,” Tenth U.S. National Congress of Applied Mechanics, pp. 475-484, Edited by J.P. Lamb, American Society of Mechanical Engineers, New York, N.Y., 1987.

“Analysis of Nonuniform Subsonic and Transonic Flows about a Row of Moving Blades,” co-author, J.R. Scott, *Unsteady Aerodynamics and Aeroelasticity of Turbomachines and Propellers*, pp.39-67, Editors, H.E. Gallus and S. Servaty, Aachen University Press, 1988.

“Modification of Turbulent Boundary Layer Structures by Large Eddy Breakup Devices,” *Turbulent Drag Reduction by Passive Means*, Vol.2, pp. 432-456, The Royal Aeronautical Society, London, 1987.

“Unsteady Vortical Disturbances Around a Thin Airfoil in Presence of a Wall” co-author, G.A. Gebert, *AIAA Journal*, **27**, No.10, pp.1448-1451, 1989.

“Unsteady Vortical and Entropic Disturbances of Streaming Motions Around Bodies,” co-author J. Grzedzinski, *Journal of Fluid Mechanics*, **209**, pp. 385-403, 1989.

“Analytical and Experimental Study of Energy Density Spectra of the Outer Region of a Manipulated Turbulent Boundary Layer,” co-authors, E. Augier, E. Alcaraz, F. Ladhari and R. Morel, *Recent Developments in Turbulence Management*, pp. 127-146, Ed. K.-S. Choi, Kluwer Academic Publishers, 1991.

“Compressible Flows With Vortical Disturbances Around a Cascade of Loaded Airfoils” co-author, J. Fang, *Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity of Turboma-*

- chines and Propellers*, Editor, H.M. Atassi, Springer Verlag, pp. 149-176, 1993.
- “High Frequency Gust Interaction With Single Loaded Airfoils in Subsonic Flows,” with J.R. Scott, *Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity of Turbomachines and Propellers*, Editor, H.M. Atassi, Springer Verlag, pp. 743-764, 1993.
- “Acoustic Radiation From a Thin Airfoil in Nonuniform Subsonic Flows,” co-authors, M.P. Dusey and C.M. Davis, *AIAA Journal*, **31**, No. 1, pp. 12-19, 1993.
- “Unsteady Aerodynamics of Vortical Flows: Early and Recent Developments,” *Aerodynamics and Aeroacoustics*, Editor K. Y. Fung, Ch. IV, pp. 119-169, World Scientific, 1994.
- “Numerical Solutions for Unsteady Subsonic Vortical Flows Around Loaded Cascades,” co-author, J. Fang, *Journal of Turbomachinery*, **115**, No. 4, pp. 810-816, 1993.
- “Direct Calculation of Sound Radiated from Bodies in Nonuniform Flows,” co-authors, J. Fang and S. Patrick, *Journal of Fluid Engineering*, **115**, pp. 573-579, 1993.
- “Acoustic Interference in Unsteady Transonic Nozzle and Cascade Flows” coauthors J. Fang and P. Ferrand, *Unsteady Aerodynamics and Aeroelasticity in Turbomachines*, Ed., Y. Tanida and M. Namba, pp. 777-794, Elsevier Science B.V., 1995.
- “A Finite-Difference Frequency Domain Numerical Scheme for the Solution of the Gust Response Problem,” co-author J.R. Scott, *Journal of Computational Physics*, **119**(1), pp. 75-93, 1995.
- “Unsteady Flow Amplification Produced by Upstream or Downstream Disturbances,” *Loss Mechanisms and Unsteady Flows in Turbomachines*, co-authors P. Ferrand and S. Aubert, Ch. 31, pp. 1-10, AGARD-CP-571, North Atlantic Treaty Organization, 1995.
- “Inverse Aeroacoustic Problem for a Streamlined Body. Part I: Basic Formulation” co-author S. Patrick and W.K. Blake, *AIAA Journal*, **34**, No. 11, pp. 2233-2240, 1996.
- “Inverse Aeroacoustic Problem for a Streamlined Body. Part II: Accuracy of Solutions” co-author S. Patrick and W.K. Blake, *AIAA Journal*, **34**, No. 11, pp. 2241-2246, 1996.
- “Sound Propagation in an Annular Duct with Mean Potential Swirling Flow,” co-author, V.V. Golubev, *Journal of Sound and Vibration*, **198**(5), pp. 601-616, 1996.
- “Sound Propagation in Swirling Flows,” co-author, V.V. Golubev, *International Journal of Acoustics and Vibration*, **2**(3), pp. 119-126, 1997.
- “Acoustic-Vorticity Waves in Swirling Flows,” co-author V.V. Golubev, *Journal of Sound and Vibration*, **209**(2), pp. 203-222, 1998.
- “Parallel Solution of Helmholtz Problems Using Additive Schwarz Methods,” co-authors, L.C. McInnes, R. Susan-resiga, and D.E. Keyes, *Mathematical and Numerical Aspects of Wave Propagation*, Ed. J.A. DeSanto, pp. 623-625, SIAM, 1998.

“Direct Computations of Unsteady Flows About Thin Airfoils,” co-authors, S.M. Grace and S.I. Hariharan, *Journal of Computational Acoustics*, **6(3)** , pp. 337-355, 1998.

“Unsteady Disturbances in Swirling Turbomachinery Flows,” co-author, V.V. Golubev, *Unsteady Aerodynamics and Aeroelasticity in Turbomachines*, Ed. T.H. Fransson, Kluware Academic Publishers, pp. 131-146, 1998.

“Unsteady Forces on Annular Cascade Blades in Subsonic Flow with Swirl,” co-author, V.V. Golubev, *Unsteady Aerodynamics and Aeroelasticity in Turbomachines*, Ed. T.H. Fransson, Kluware Academic Publishers, pp. 147-164, 1998.

“A Domain Decomposition Method for the External Helmholtz Problem,” co-author, R. Susan-Resiga, *Journal of Computational Physics*, **147(2)**, pp. 388-401(December)1998.

“Additive Schwarz Methods with Nonreflecting Boundary Conditions for the Parallel Computation of Helmholtz Problems,” coauthors, L.C. McInnes, R.F.Susan-Resiga, and D.E. Keyes, *Contemporary Mathematics*, **218** pp.325-333, Domain Decomposition Methods 10, Ed.J. Mandel, C. Farhat, X-C. Cai, American Mathematical Society, 1998.

“Unsteady Swirling Flows in Annular Cascades. Part I. Evolution of Vortical Disturbances,” co-author V. Golubev, *AIAA Journal*, **38**, No. 7, pp. 1142-1149, 2000.

“Unsteady Swirling Flows in Annular Cascades. Part II. Aerodynamic Response,” co-author V. V.Golubev, *AIAA Journal*, **38**, No. 7, pp. 1150-1158, 2000.

“Domain Decomposition Method for Aeroacoustic Problems,” co-author R. Susan-Resiga, *AIAA Journal*, **39** (5), pp. 802-809, 2001.

“Unsteady Aerodynamics and Acoustics of Swirling Flows,” *Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity in Turbomachines*, Ed. P. Ferrand and S. Aubert, Kluware Academic Publishers, pp. 95-122, 2001.

“Nonreflecting Far-Field Conditions for Unsteady Aerodynamics and Aeroacoustics,” co-author R. Susan-Resiga, *Analele Universității București, Matematică*, pp.211-222, Anul L(2001).

“Scattering of Incident Disturbances by an Annular Cascade in a Swirling Flow,” co-authors A.A. Ali, O. V. Atassi and I.V. Vinogradov, *Journal of Fluid Mechanics*, **499**, pp. 111-138, 2004.

“Passive Control for Turbofan Tonal Noise,” co-author B. Elhadidi, *AIAA Journal*, **43** (11), pp. 2279-2292, 2005.

“Passive Noise Control by Lean and Sweep,” co-author B. Elhadidi, Ed. K.C. Hall, R.E. Kielb and J.P. Thomas, Springer, pp. 233-245, 2006.

“Interaction of Acoustic and Vortical Disturbances with an Annular Cascade in a Swirling Flow,” co-author A.A. Ali and O.V. Atassi, Ed. K.C. Hall, R.E. Kielb and J.P. Thomas,

Springer, pp. 247-259, 2006.

“Aerodynamic and Acoustic Response of an Annular Cascade to Turbulence,” co-author I.V. Vinogradov, in *Turbomachines: Aeroelasticity, Aeroacoustics, Unsteady Aerodynamics*, Eds. V. Skibin, V. Saren, N. Savin, and S. Frolov, Torus Press, pp. 237-256, 2006.

“Modeling Tonal and Broadband Interaction Noise,” co-author M.M. Logue, in IUTAM Symposium on Computational Aeroacoustics for Aircraft Noise Prediction,” Ed. R.J. Astley and G. Gabard, <http://www.sciencedirect.com/science/journal/22109838>, Procedia IUTAM, volume 1: pp. 214-223, Elsevier, 2010.

“Aerodynamics and Interaction Noise of Streamlined Bodies in Nonuniform Flows,” co-author M.M. Logue, Journal of Sound and Vibration, doi:10.1016/j.jsv.2011.03.009, 2011.

“Aerodynamics and Acoustics of an Annular Cascade: Comparison with a Linear Cascade,” co-authors M.M. Logue, D. A. Topol, and J. J. Gilson, to appear in AIAA Journal, 2011. (Presented as paper AIAA-2010-3870).

## CONFERENCE PROCEEDINGS

“Aerodynamic Forces Acting Upon a Body in Flight in Nearly Free Molecule Flow,” 24th Regular Meeting of the Division of Fluid Dynamics of the American Physical Society, San Diego, California, November 22-24, 1971.

“Unsteady Lift Forces of Highly Cambered Airfoils Moving Through a Gust,” co-author, M. Goldstein, **AIAA-74-88**, 8 pages, Aerospace Sciences Meeting, Washington, D.C., January, 1974.

“Influence of Loading on the Unsteady Aerodynamics of Turbomachine Blades,” in *Unsteady Flows in Jet Engines*, Editor, F.O. Carta, pp. 449-464, International Workshop held at United Aircraft Research Laboratories, July 11-12, 1974.

“Influence of Loading on the Sound Field of Turbomachine Blades at Low and Moderate Mach Numbers,” *Transportation Noise*, Editors, G. Banarian and Ph.Dickinson, pp. 352-360, Third Inter-agency Symposium on University Research in Transportation Noise, University of Utah, November 12-14, 1975.

“Aerodynamic Forces and Pressure Distribution of an Oscillating Airfoil of Arbitrary Shape,” Co-author, M. Goldstein Bulletin of the American Physical Society, p. 1437, Series II, Vol. 20, No. 11, November, 1975.

“Effect of Loading and Rotor Wake Characteristics on the Acoustic Response of Stator Blades,” **AIAA-76-566**, 6 pages, Third Aeroacoustics Conference, Palo Alto, CA., July 20-23, 1976.

“Unsteady Aerodynamic Forces Acting on Loaded Two-Dimensional Blades in Nonuniform

Incompressible Flows,” co-author M. Goldstein, *IUTAM Symposium on Aeroelasticity in Turbomachines*, Editor, R. Legendre and M. Roy, Paris, October 18-23, 1976.

“Evolution of a Small Three-Dimensional Disturbance in a Stationary Potential Flow,” 30th Regular Meeting of Division of Fluid Mechanics, APS., November 21-23, 1977.

“Aerodynamic Forces and Moment on Oscillating Airfoils in Cascade,” co-author, T.J. Akai, **ASME 78-GT-181**, 12 pages, International Gas Turbine Conference, London, England, April, 1978.

“Effect of Blade Loading and Thickness on the Aerodynamics of Oscillating Cascades,” co-author, T.J. Akai, **AIAA-78-227**, 10 pages, Aerospace Sciences Meeting, Washington, D.C., January, 1978.

“Effect of Shape and Incidence on the Instability of an Airfoil in Pitching Oscillations,” co-authors, D.J. Gleason and R.J. Dieckelman **AIAA-79-771**, 9 pages, 20th Structural Dynamics and Materials Conference, Los Angeles, CA, April 4-6, 1979.

“Interaction of a Small 3-D Gust Disturbance with an Airfoil,” Bull. of Amer. Phys. Soc., Vol. 24, No. 8, P. 1127, October 1979.

“Ground Effect on a Borda Mouthpiece Flow,” co-author, W.H. Newman, Bull. of Amer. Phys. Soc., Vol. 24, No.8, p. 1136, October 1979.

“Unsteady Flow Past an Airfoil with Thickness Subject to a Two-Dimensional Gust,” co-author, G. Hamad, Bull. of Amer. Phys. Soc. Vol. 24, No. 8 , p. 1127, October 1979.

“A Two-Dimensional Potential Flow Model for Ground-Induced Effects and Jet and Fan Inlets,” co-author, W.H. Newman, **AIAA 80-388**, 9 pages, Aerospace Sciences Meeting, Reno, NA, January, 1980.

“Aerodynamic Response of an Airfoil with Thickness to a Longitudinal and Transverse Periodic Gust,” co-author, G. Hamad, **AIAA 80-0151**, 5 pages, Aerospace Sciences Meeting, Reno, NA, January, 1980.

“Stability and Flutter Analysis of Turbine Blades at Low Speed,” *Joint NASA, Air Force and Navy Symposium on Aeroelasticity of Turbine Engines*, NASA Lewis Research Center, pp. 61-67, October 27-29, 1980.

“Sound Generated in a Cascade by 3D Disturbances Convected in a Subsonic Flow,” co-author, G. Hamad, **AIAA 81-2046**, 13 pages, 7th Aeroacoustic Conference, Palo Alto, CA, October 5-7, 1981.

“Regularization of Goldstein’s Splitting of Unsteady Vortical and Entropic Distortions of Potential Flows,” Invited Paper, 19th Annual Meeting, Society of Engineering Science, Rolla, Missouri, p. 354, October 1982.

“Unsteady Vortical Distortions of Potential Flows Round Bluff Bodies,” co-author, J.

Grzedzinski, Bull. Amer. Phys. Soc., Vol. 24, No. 8, p. 1356, November 1983.

“Feedback in Separated Flows Over Symmetric Airfoils,” NASA bf TM 83758, 1984.  
also **AIAA 84-2297**, AIAA/NASA 9th Aeroacoustic Conference, Williamsburg, Virginia,  
October 15-17,1984.

“Analysis of Turbulent Boundary Layer Modification by Large Eddy Breakup Devices,” co-  
author, G.A. Gebert, Bulletin of the American Physical Society, pp.1702, November, 1986.

“Modification of Compressible Turbulent Boundary Layer Structures by Streamlined De-  
vices,” co-author, G.A. Gebert, **AIAA 89-0212**, Aerospace Sciences Meeting, January  
1989, Reno, Nevada.

“Distortion of Three-Dimensional Vorticity Waves by a Cascade of Airfoils,” co-authors, J.  
Fang and P.R. McHugh, **ASME 89-GT-246**, International Gas Turbine and Aeroengine  
Congress and Exposition, Toronto, June 4-8, 1989.

“Numerical Solutions of Periodic Vortical Flows About a Thin Airfoil”, co-author, J.R.  
Scott, NASA **TM 101998**, 1989. Also **AIAA 89-1691**, AIAA Thermophysics Confer-  
ence, , Buffalo, New York, June 12-15, 1989.

“Numerical Solutions of the Linearized Euler Equations for Unsteady Vortical Flows Around  
Lifting Airfoils,” co-author, J.R. Scott, NASA **TM 102466**, 1990. Also **AIAA 90-0694**,  
Aerospace Sciences Meeting, Reno, Nevada, January, 1990.

“A Finite-Difference Frequency Domain Numerical Scheme for the Solution of the Linearized  
Euler Equations,” co-author J.R. Scott, NASA CP-10045, Ch. 5, pp. 1- 50, Proceedings of  
the Computational Fluid Dynamics Symposium on Aeropropulsion, NASA Lewis Research  
Center, Cleveland, Ohio, April 24 to 26, 1990. Also, NASA CP 3078, pp. 55-104, 1991.

“Nonunique Solutions of a Second Order Boundary-Value Problem,” co-author, M. Sen,  
SIAM Annual Conference, p.A16, Chicago, July 1990.

“ Acoustic Radiation From a Thin Airfoil in Nonuniform Subsonic Flows,” co-author, M.P.  
Dusey, **AIAA 90-3910**, Aeroacoustic Conference, Tallahassee, Florida, October, 1990.

“Acoustic Radiation From a Lifting Airfoil in Nonuniform Subsonic Flows,” co-author,  
S. Subramanian and J.R. Scott, **AIAA 90-3911**, Aeroacoustic Conference, Tallahassee,  
Florida, October 1990.

“Spectra of Turbulent Energy and Shear Stress of Manipulated Turbulent Boundary-Layers,”  
co-author, E. Augier, Bulletin of the American Physical Society, Vol. 35, No. 10, p. 2232,  
November 1990.

“The Far-Field Acoustic Pressure of a Lifting Airfoil in Nonuniform Subsonic Flows,” co-  
author, C. M. Davis, *Flow Noise Modelling, Measurement and Control*, ASME Winter  
Annual Meeting, Atlanta, GA, NCA-Vol. 11 / FED, Vol. 130, pp.107-117, December 1991.

“Acoustic Radiation of a Propeller Blade Encountering a High Frequency Gust,” co-author, S. Subramanian, *Flow Noise Modelling, Measurement and Control*, ASME Winter Annual Meeting, Atlanta, GA, NCA, 11/ FED, Vol. 130, pp 119-128, December 1991.

“Three-Dimensional Unsteady Vortical Disturbances Around a Cascade of Loaded Airfoils,” co-author, J. Fang, **AIAA 92-0146**, Aerospace Sciences Meeting, Reno, Nevada, January 1992.

“Numerical Solutions for Unsteady Subsonic Vortical Flows Around Loaded Cascades,” co-author, J. Fang, **ASME 92-GT-173**, International Gas Turbine and Aeroengine Congress and Exposition, Cologne, Germany, June 1-4, 1992.

“Aerodynamics and Aeroacoustics of Airfoils and Cascades in Nonuniform Flows,” *Unsteady Aerodynamics for Aeroelasticity and for Aeroacoustics of Rotating Blades*, pp 162-186, NASA Lewis Research Center Conference, Cleveland, Ohio, July 21-22, 1992.

“Unsteady Turbomachine Flows: A Source of Noise and Vibration,” II Conferencia Latinoamericana de Turbomaquinas, Editor, Octavio Salazar, pp. 325-341, Cuernavaca, Morelos, Mexico , February 15-18, 1993.

“Acoustic Radiation from a Lifting Airfoil in Nonuniform Subsonic Flows,” co-authors, S.M. Patrick and C.M. Davis, *Computational Aero- and Hydro-Acoustics*, ASME FED, Vol. 147, pp. 41-46, June 1993.

“Direct Calculation of Sound Radiated from a Loaded Cascade in a Gust,” co-author, J. Fang, *Computational Aero- and Hydro-Acoustics*, ASME FED - Vol. 147, pp. 111-116, June 1993.

“High-Frequency Interaction Noise of Loaded Propellers Operating at Low Tip Speed,” co-author, S. Subramanian, *Computational Aero-and Hydro-Acoustics*, ASME FED , Vol. 147, pp. 117-122, June 1993.

“A Study of the Unsteady Pressure of a Cascade Near Transonic Flow Condition,” co-authors, J. Fang and P. Ferrand, **ASME 94-GT-476**, International Gas Turbine and Aeroengine Congress and Exposition, The Hague, The Netherlands, June 13-16,1994.

“Effects of Nonuniform Flows on the Aerodynamics and Noise of Ducted Fans,” *Unsteady Aerodynamics for Aeroelasticity and Aeroacoustics of Rotating Blades*, pp 162-186, NASA Lewis Research Center AST Engine Workshop, Cleveland, Ohio, July 19-22, 1994.

“The Inverse Problem in Aeroacoustics and Aerodynamics,” co-authors, S. Patrick and W. Blake, *Active Control of Vibration and Noise*, ASME DE-Vol. 75, pp.309-320, November 1994.

“Acoustic Blockage Effects in Unsteady Transonic Nozzle and Cascade Flows,” co-authors, J. Fang and P. Ferrand, **AIAA 95-0303**, AIAA Aerospace Sciences Meeting, Reno, Nevada, January 1995.



“The Pressure Field of a Gust Interacting with a Flat Plate,” co-author, S. M. Patrick , NASA CP 3300, *Benchmark Problems in Computational Aeroacoustics*, NASA ICASE/LaRC Workshop, pp. 291-296, Editors, J.C. Hardin, J.R. Ristrcelli, and C.K.W. Tam, May 1995.

“Aerodynamic and Acoustic Response of a Blade Row in Unsteady Swirling Flow,” co-author, V.V. Golubev, Proceedings of the First CEAS/AIAA Aeroacoustics Conference, Volume I, pp. 167-176, Edited by German Society for Aeronautics and Astronautics, Munich, Germany, June 1995.

“Inverse Problems in Aerodynamics and Aeroacoustics,” co-author, S. M. Patrick , Proceedings of the First CEAS/AIAA Aeroacoustics Conference, Volume II, pp. 1105-1114, Edited, German Society for Aeronautics and Astronautics, Munich, Germany June 1995.

“Aeroacoustics of Nonuniform Swirling Flows,” (Invited Lecture) *Computational Aeronautics*, ASME FED Vol. 219, p. 1, August 1995.

“Acoustic and Evanescent Modes in an Annular Duct with Swirling Flows,” co-author V.V. Golubev, *Computational Aeronautics*, ASME FED Vol. 219, pp. 95-100, August 1995.

“Sound Radiated from a loaded Cascade in Nonuniform Transonic Flow,” **AIAA 96-1756**, co-author J. Fang, Second AIAA/CEAS Aeroacoustics Conference, State College, PA, May 1996.

“Inverse Aeroacoustic Problem for a Rectangular Wing Interacting with a Gust,” **AIAA 96-1790**, co-author S. M. Patrick, Second AIAA/CEAS Aeroacoustics Conference, State College, PA, May 1996.

“Tone Noise Radiation from a Propeller Operating in the Wake of a Circular Cylinder,” **AIAA 96-1788**, co-authors, S. Subramanian, and T. J. Mueller, Second AIAA / CEAS Aeroacoustics Conference, State College, PA, May 1996.

“Sound Propagation in Swirling Flows,” co-author, V.V. Golubev, Fourth International Congress on Sound and Vibration, Editors, M.J. Crocker and N.I. Ivanov, pp.161-168, St. Petersburg, Russia, June 24-27, 1996.

“Acoustic and Vortical disturbances in Nonuniform swirling Flows,” co-author, V.V. Golubev, XIXth International Congress of Theoretical and Applied Mechanics, Ed. IUTAM, p.701, Kyoto, Japan, August 25-31,1996.

“Aeroacoustics of Nonuniform Flows,” **AIAA 97-0378** AIAA Aerospace Sciences Meeting, January 6, 1997, Reno, Nevada.

“Inverse Problems in Aeroacoustics and Aerodynamics,” co-authors S. Patrick Grace and W.K. Blake, International Congress on Fluid Dynamics and Propulsion, Ed. ASME International and Cairo University, pp. 514-523, Cairo, Egypt, Dec. 29-31, 1996.

“Interaction of Acoustic, Entropic, and Vortical Waves with a Plane Shock,” co-author B. Hardy, **AIAA 97-1614-CP** 3rd AIAA/CEAS Aeroacoustic Conference, AIAA CP974, pp.211-221, Atlanta, Georgia, May 12-14,1997.

“3D Unsteady Effects in Annular Cascades with swirl and Comparison with 2D Strip Theory,” co-authors V. Golubev, and A. Lipatov, **AIAA 97-1634-CP** 3rd AIAA/CEAS Aeroacoustic Conference, AIAA CP974, pp.400-410, Atlanta, Georgia, May 12-14,1997.

“Interaction of Acoustic–Vorticity Waves with an Annular Cascade in a Swirling Flow,” co-author V. Golubev, **AIAA 97-1635-CP** 3rd AIAA/CEAS Aeroacoustic Conference, AIAA CP974, pp.411-421, Atlanta, Georgia, May 12-14,1997.

“Acoustic–Vorticity Modes in an Annular Duct with Mean Vortical Swirling Flow,” co-author V. Golubev, **AIAA 97-1695-CP** 3rd AIAA/CEAS Aeroacoustic Conference, AIAA CP974, pp.804-814, Atlanta, Georgia, May 12-14,1997.

“Analysis of Nonlinear Transonic Blockage in Unsteady Transonic Flows,” co-authors, P. Ferrand, L. Smati, and S. Aubert, **AIAA 97-1803** AIAA Computational Fluid Dynamics Conference, June 23-26, 1997, Snowmass, Colorado.

“Additive Schwarz Preconditioner for the Helmholtz Equation with Non-Reflecting Boundary Conditions,” co-authors, L. McInnes, R. Susan-Resiga, and D. Keyes, Tenth International Conference on Domain Decomposition, Boulder, Colorado, August 11-14, 1997.

“Unsteady Disturbances in Swirling Turbomachinery Flows,” co-author, V.V. Golubev, Proceedings of the 8th International Symposium on Unsteady Aerodynamics and Aeroelasticity in Turbomachines, September 15-18, 1997, Stockholm, Sweden.

“ Unsteady Forces on Annular Cascade Blades in Subsonic Flow with Swirl,” co-author, V.V. Golubev, in press, Proceedings of the 8th International Symposium on Unsteady Aerodynamics and Aeroelasticity in Turbomachines, September 15-18, 1997, Stockholm, Sweden.

“Mean Flow Effects on Sound Generation and Propagation,” ASME Winter Annual Meeting, November 1997, Dallas, Texas.

“Aditive Schwarz Methods with Nonreflecting Boundary Conditions for the Parallel Computation of Helmholtz Problems,” *Proceedings of the 10th International Conference on Domain Decomposition Methods*, pp. 00-00, American mathematical Society, Providence, 1998.

“Parallel Solution of Helmholtz Problem Using Additive Schwarz Methods,” co-authors, L.C. McInnes, R. Susan-resiga, and D.E. Keyes, Fourth International Conference on Mathematical and Numerical Aspects of Wave Propagation,” June 1–5, 1998, Golden, Colorado.

“Nonlinear Interaction of Upstream Propagating Sound with Transonic Flow in a Nozzle,” co-authors P. Ferrand, S. Aubert, and L. Smati, **AIAA 98-2213** 4th AIAA/CEAS Aeroacoustics Conference, June 2–4, 1998, Toulouse, France.

“Gust Response of Unloaded Annular Cascades in Mean Swirling Flows,” co-author, V.V. Golubev, Proceedings of the Symposium on Advances in Numerical Modeling of Aerodynamics and Hydrodynamics in turbomachinery, ASME FED, 21-25 June 1998, Washington, D.C.

“Evolution of Disturbances in Annular Swirling Flows,” co-author, V.V. Golubev, Proceedings of the Symposium on Advances in Numerical Modeling of Aerodynamics and Hydrodynamics in turbomachinery, ASME FED, 21-25 June 1998, Washington, D.C.

“Parallel Computation of Harmonic Waves Using Domain Decomposition. Part 1: General Formulation,” co-author, R. Susan-Resiga, Proceedings of IMECE98, 1998 International Mechanical Engineering Congress and Exposition, November 15-20, 1998, Anaheim, California.

“Parallel Computation of Harmonic Waves Using Domain Decomposition. Part 2: Numerical Implementation and Applications,” co-author, R. Susan-Resiga, Proceedings of IMECE98, 1998 International Mechanical Engineering Congress and Exposition, November 15-20, 1998, Anaheim, California.

“Numerical Implementation of Inflow/Outflow Conditions for Time-Harmonic Turbomachinery Flows,” co-author, V. Golubev, Proceedings of IMECE98, 1998 International Mechanical Engineering Congress and Exposition, November 15-20, 1998, Anaheim, California.

“Parallel Computing Using Schwarz Domain Decomposition Method for Aeroacoustic Problems,” co-author R. Susan-Resiga, **AIAA 98-2218** 4th AIAA/CEAS Aeroacoustics Conference, June 2-4, 1998, Toulouse, France.

“Effect of Swirling Flow on Sound Radiated from a Fan Subject to a Gust,” co-author V. Golubev and A. Ali, **AIAA 99-1844** 5th AIAA/CEAS Aeroacoustics Conference, May 10-12, 1999, Bellevue (Greater Seattle), Washington.

“Evolution of Rotor Wake in Swirling Flow,” co-authors B. El-Hadid, E. Envia, and G. Podboy, **AIAA 2000-1991** 6th AIAA/CEAS Aeroacoustics Conference, June 12-14, 2000, Maui, Hawaii.

“A Domain Decomposition Algorithm on Unstructured Mesh for Aerodynamic-Aeroacoustic Applications,” co-author R. Susan-Resiga, **AIAA 2000-1979** 6th AIAA/CEAS Aeroacoustics Conference, June 12-14, 2000, Maui, Hawaii.

“Acoustic Eigenmodes in Coannular Duct with a General Swirling Flow,” co-authors A. Ali, and O. V. Atassi, **AIAA 2000-1991** 6th AIAA/CEAS Aeroacoustics Conference, June 12-14, 2000, Maui, Hawaii.

“Effects of Blade Shape and Loading on the Acoustic Radiation of a Cascade,” co-author Y. Abdelhamid, **AIAA 2000-2093** 6th AIAA/CEAS Aeroacoustics Conference, June 12-14, 2000, Maui, Hawaii.

“Swirl in Turbomachinery Flow,” (Invited Paper), Proceedings of FEDSM2000, 2000 ASME FED June 11-15, 2000, Boston, Massachusetts, USA.

“Propagation of Acoustic and Vortical Disturbances in a Duct with Swirling Flows,” Invited Paper, International Conference on Theoretical and Applied Mechanics (ICTAM), August 27- September 1, 2000, Chicago, IL.

“Derivation and Implementation of Inflow/Outflow Conditions for Aeroacoustic Problems with Swirling Flows,” co-authors Amr Ali and Oliver V. Atassi, AIAA paper 2001-2173 at the 7th AIAA/CEAS Aeroacoustics Conference, Maastricht, The Netherlands, May 28-30, 2001.

“Computation of Time Harmonic Acoustic Waves in a Duct with Nonuniform Mean Flow,” co-authors Amr Ali and Oliver V. Atassi, 2001 ASME International Mechanical Engineering Technical Congress and Exposition, New York, NY, USA, November 11-16, 2001.

“Acoustic Radiation from an Annular Cascade in a Swirling Flow,” co-authors Amr Ali and Oliver V. Atassi, 7th ASME International Conference of Fluid Dynamics and Propulsion, Cairo, Egypt., December 19-21, 2001.

“Scattering of Acoustic and Vorticity Disturbances by an Unloaded Annular Cascade in a Swirling Flow,” co-authors Amr Ali and Oliver V. Atassi, AIAA paper 2002-2559 at the 8th AIAA/CEAS Aeroacoustics Conference, Breckenridge, Colorado, May, 27-29, 2002.

“High Frequency Sound Radiation from an Annular Cascade in Swirling Flows,” co-authors B. Elhadidi, AIAA paper 2002-2560, the 8th AIAA/CEAS Aeroacoustics Conference, Breckenridge, Colorado, May, 27-29, 2002.

“Finite Element Implementation of Nonreflecting Far-field Conditions for Unsteady Aerodynamics and Aeroacoustics,” co-authors R. Susan-Resiga, AIAA paper 2002-2439, the 8th AIAA/CEAS Aeroacoustics Conference, Breckenridge, Colorado, May, 27-29, 2002.

“High Frequency Formulation for Interaction Noise in Annular Cascades,” co-authors B. Elhadidi, AIAA-2003-3133, the 9th AIAA/CEAS Aeroacoustics Conference, Hilton Head, South Carolina, May, 12-14, 2003.

“Acoustic and Hydrodynamic Response of an Annular Cascade to Inflow Disturbances in Swirling Flows,” co-authors B. Elhadidi and W.K. Blake, Proceedings of FEDSM03, 4th ASME/JSME Joint Fluids Engineering Conference, Honolulu, Hawaii, July 6-11, 2003.

“Passive Noise Control By Vane Lean and Sweep,” co-author B. Elhadidi, 10th International Symposium on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity in Turbomachines, Duke University, Durham, North Carolina, September 7-11, 2003.

“Interaction of Acoustic and Vortical Disturbances with an Annular Cascade in a Swirling Flow,” co-authors A.A. Ali and O.V. Atassi, 10th International Symposium on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity in Turbomachines, Duke University, Durham, North Carolina, September 7-11, 2003.

“Attenuation of Scattered Acoustic Waves in Treated Ducts with Soft Vanes,” co-authors B. Elhadidi and A. Ali, AIAA-2004-2905, the 10th AIAA/CEAS Aeroacoustics Conference, Manchester, United Kingdom, May, 10-12, 2004.

“Passive Noise Control by Lean and Sweep,” co-authors B. Elhadidi, AIAA-2004-2999, the 10th AIAA/CEAS Aeroacoustics Conference, Manchester, United Kingdom, May, 10-12, 2004.

“A Model for Fan Broadband Interaction Noise in Nonuniform Flow,” co-authors I.V Vinogradov, AIAA-2005-2880, the 11th AIAA/CEAS Aeroacoustics Conference, Monterey, California, May, 23-25, 2005.

“Sound Radiation from Sources in a Submerged Elastic Duct with Periodic Stiffening,” co-authors W. Zhang and W.K. Blake, ASME International Congress and RD & D Expo, Orlando, Florida, November 5-11, 2005.

“Modelling Broadband Fan Noise and Comparison with Experiments,” co-authors I.V Vinogradov, AIAA-2007-2032, the 13th AIAA/CEAS Aeroacoustics Conference, Rome, Italy, May, 21-23, 2007.

Atassi, H. M., and M. M. Logue, Effect of Turbulence Structure on Broadband Fan Noise,” 14th AIAA/CEAS Aeroacoustics Conference, Vancouver, British Columbia, May 5-7, 2008, AIAA-2008-2842.

Atassi, H. M., and M. M. Logue, Fan Broadband Noise in Anisotropic Turbulence,” 15th AIAA/CEAS Aeroacoustics Conference, Miami, Florida, May 11-13, 2009, AIAA- 2009-3148.

Logue, M. M., and H. M. Atassi, Scattering of Acoustic Waves by a Rotor,” 14th AIAA/CEAS Aeroacoustics Conference, Vancouver, British Columbia, May 5-7, 2008, AIAA-2008-2989.

Logue, M. M., and H. M. Atassi, Passive Control of Fan Broadband Noise,” 15th AIAA/CEAS Aeroacoustics Conference, Miami, Florida, May 11-13, 2009, AIAA-2009- 3149.

Atassi, H. M., and M. M. Logue. Fan Aerodynamic and Acoustic Response to Anisotropic Turbulence,” Twelfth International Symposium on Unsteady Aerodynamics, Aeroacoustics, and Aeroelasticity of Turbomachines, London, United Kingdom, September 1-4, 2009.

Logue, M. M., H. M. Atassi, and M. S. Kamel. Propagation of Acoustic Waves Through A Rotor,” Twelfth International Symposium on Unsteady Aerodynamics, Aeroacoustics, and Aeroelasticity of Turbomachines, London, United Kingdom, September 1-4, 2009.

Atassi, H. M., and M. M. Logue. Modeling Tonal and Broadband Interaction Noise,” IU-TAM Symposium on Computational Aero-Acoustics for Aircraft Noise Prediction, South Hampton, United Kingdom, March 29-31, 2010.

Logue, M. M., and H. M. Atassi. Sound Generation and Scattering From a Rotor in a Publications Nonuniform Flow,” 16th AIAA/CEAS Aeroacoustics Conference, Stockholm, Sweden, June 7-9, 2010, AIAA-2010-3743.

## REPORTS

“Measurements in Acoustical and Instrumental Music,” Second Doctoral Thesis, University Paris, 1967.

“Etude d’un Point Particulier du Refroidissement de Celluel Cristal De Neige, EL.3,” Centre D’Etudes Nucléaires de Saclay, Technical Note I. 201, DER-GOE62/429803, 1962.

“Répartition des Temperatures dans un Tube Circulaire Chauffant Refriodi par de l’Air en Ecoulement Turbulent,” Centre d’Etudes Nucleaires de Saclay, DEP-EMT/T-t3-3678, Co-author, A. Marchal, 1963.

“Study of the CFS Separator and Particle Interference,” University of Notre Dame, Mechanical Engineering, Report III, co-authors R. Brach and R. Pedtke, 1974.

“Unsteady Aerodynamic Forces on Highly Cambered Airfoils Moving Through Gusts at Arbitrary Angle of Incidence,” Report, AFOSR, TR- 2675-751, Aerospace Engineering, University of Notre Dame, 1975.

“A Complete First-Order Theory for the Unsteady Aerodynamics of Oscillating Airfoils in Cascade,” University of Notre Dame, Aerodynamics Group, TR-722, 1977.