JAMES M. WALLACE

Curriculum Vitae
March 15, 2010

I. Personal Data

Date of Birth	August 11, 1939
Place of Birth	Augusta, Georgia
Martial Status	Married (one child)
Citizenship	U.S.A.

II. Education

Name of Institution	*Date Degree Received*	*Degree Conferred*
University of Oxford England	December 1969	Doctor of Philosophy (in Engineering Science)
Georgia Institute of Technology	November 1964	Master of Science (in Civil Engineering)
Georgia Institute of Technology	August 1962	Bachelor of Civil Engineering

III. Experience in Higher Education

Aug. 1983 to Present	Professor, Department of Mechanical Engineering, University of Maryland
Sept. 2001 to Present	Director, Gemstone Program for Undergraduate Honors Team Research, University of Maryland
July 2006 to Present	Board Chair of the Burgers Program for Fluid Dynamics and Affiliate faculty in the Institute for Physical Science and Technology, University of Maryland
Aug. 1999 to Jan. 2002	Director, College Park Scholars/Science, Technology & Society and Science, Technology & Society Certificate Programs, University of Maryland
Sept. 1992 to Aug. 1998	Associate Chairman and Director of Graduate Studies, Department of Mechanical Engineering, University of Maryland, College Park
July 1986 to Sept. 1987	Assistant Dean, College of Computer, Mathematical and Physical Sciences, University of Maryland, College Park
Sept. 1985 to July 1986	Assistant Provost, Division of Mathematical and Physical Sciences and Engineering, University of Maryland, College Park
Aug. 1978 to Aug. 1983	Associate Professor, Department of Mechanical Engineering, University of Maryland
Aug. 1975 to Aug. 1978	Assistant Professor, Department of Mechanical Engineering, University of Maryland
Jan. 1973 to May 1973	Visiting Assistant Professor, Department of Chemical Engineering,

and Oct. 1971 to Feb. 1972	Ohio State University
Jan. 1967 to Mar. 1969	Teaching Assistant, Engineering Science Department, Oxford University
Sept. 1963 to Mar. 1964	Teaching Assistant, School of Civil Engineering, Georgia Institute of Technology

IV. Experience Other Than Higher Education

A. *Industrial Experience*

Oct. 1965 to Sept. 1966	Sir William Halcrow and Partners (London), Hydraulic Engineer, design of water resource systems
Apr. 1964 to Sept. 1965	Harza Engineering Company (Chicago). Hydraulic Engineer, special hydraulic and fluid mechanics problems
Jan. 1958 to Mar. 1959	Socony Mobile Company, co-op student working as an assistant on seismographic exploration team

B. *Research Experience*

Aug. 1996 to Aug. 1997	Visiting Research Scientist at the Ecole Centrale de Lyon, Laboratoire de Mecanique des Fluids investigating the turbulent dispersion of scalar contaminants
Sept. 1988 to Dec. 1988	Visiting Scholar at MIT in the Science, Technology and Society Program developing such a program for the University of Maryland
Feb. 1982 to June 1982	Visiting Scholar at Union Theological Seminary (New York City) studying ethical problems in Science, Technology and Society
June 1981 to Feb. 1982	Visiting Research Scientist at the Ecole Centrale de Lyon, Laboratoire de Mecanique des Fluids investigating the physics of turbulent shear flows
Sept. 1975 to present	Research at the University of Maryland investigating the physics of turbulent shear flows
Sept. 1969 to Aug. 1975	Research Scientist at the Max-Planck-Institut fuer Stroemungsforschung investigating the physics of turbulent shear flows
Sept. 1966 to July 1969	D. Phil. Student at Oxford University investigating sources of errors in static pressure measurements under turbulent boundary layers
Sept. 1962 to Mar. 1964	M.Sc. student at the Georgia Institute of Technology investigating criteria for flow establishment in an open channel turbulent flow

V. Membership in Honorary and Professional Societies

Fellow of the American Physical Society

VI. Theses Directed

A. *Completed*

1. Diplomarbeit (M.Sc. Equivalent) of M. Hofbauer, George-August Universitat Gottingen, "Das Dynamische Verhalten von Heissfilmsonden bei Tiefen Frequenzen" (1975), (with Helmut Eckelmann).

2. Doktorarbeit (Ph.D. Equivalent) of E. G. Kastrinakis, George-August Universitat Gottingen, "Experimental Untersuchungen der Langsschwankungen des Geschwindigkeitsvektors in einer Ausgebildeten Turbulenten Kanalstromung" (1976) (with Helmut Eckelmann).

3. M.Sc. Thesis of William G. Cleveland, Dept. of Mechanical Engineering, The University of Maryland, "A Constant Temperature Streamwise Vorticity Probe" (1979).

4. Doctoral Thesis (Ph.D. Equivalent) of Petar Vukoslavcevic, The University "Veljko Vlahovic," Titograd, Yugoslavia (work supervised and completed while Vukoslavcevic was at the Univ. of Maryland on a Fulbright Fellowship), "The Methods and X-array Probes for Measurements of Velocity and Streamwise Vorticity Components," (1981).

5. M.Sc. Thesis of Ralph A. Youngs, Dept. of Mechanical Engineering, The University of Maryland, "The Mechanics of Viscous Drag Reduction by a Large Eddy Breakup Device in a Turbulent Boundary Layer" (1981).

6. Ph.D. Thesis of David Hooshmand, Dept. of Mechanical Engineering, The University of Maryland, "An Experimental Investigation of the Influence of a Drag-Reducing, Longitudinally Aligned, Triangular Riblet Surface on the Velocity and Streamwise Vorticity Fields of a Zero-Pressure Gradient Turbulent Boundary Layer" (1985).

7. These d'Etat (Ph.D. Equivalent) of Jean-Louis Balint, Ecole Centrale de Lyon, France (work supervised and completed while Balint was at the University of Maryland), "Contribution de l'Etude de la Structure Tourbillionaire d'une Couche Limite Turbulente au Moyen d'une Sonde a Neuf Fils Chaude Measurant le Rotationnel" (1986).

8. Ph.D. Thesis of Lawrence Ong, Department of Mechanical Engineering, The University of Maryland, "Visualization of Turbulent Flows with Simultaneous Velocity and Vorticity Measurements" (1992).

9. Ph.D. Thesis of Seong-Ryong Park, Department of Mechanical Engineering. The University of Maryland, "An Experimental Study of Passive Drag Reduction in a Turbulent Boundary Layer by a Riblet Surface" (1992).

10. Ph.D. Thesis of Phúc Ngoc Nguyen, Department of Mechanical Engineering, The University of Maryland, "Simultaneous Measurements of the Velocity and Vorticity Fields in the Turbulent Near Wake of a Circular Cylinder" (1993) (with Barsam Marasli).

11. Ph.D. Thesis of Alan Folz, Department of Mechanical Engineering, The University of Maryland, “An Experimental Study of the Near Surface Turbulence in the Atmospheric Surface Layer” (1997)

12. Ph.D. Thesis of Richard B. Loucks, Department of Mechanical Engineering, The University of Maryland, “An Experimental Investigation of the Velocity and Vorticity Fields in a Plane Mixing Layer” (1998).

13. Ph.D. Thesis of Ning Li, Department of Mechanical Engineering, The University of Maryland, “Passive Scalar Dispersion in a Turbulent Mixing Layer” (2004) (with Elias Balaras).

B. *Current*

None

VII. Grants and Awards

A. *Grants*

1. "Erforschung der Struktur der Wandnahen Turbulenten Stromungen" (Investigation of the structure of turbulent flows in the wall region), *Deutsche Forshungsgemeinschaft*, 110,000, -- DM ($48,000) for two years, 1971-1974, with H. Eckelmann.

2. "Erkennen von Strukturen in der Turbulenten Wandbegrenzten Stromung" (Recognition of structures in wall bounded turbulent shear flow), *Deutsche Forschungsgemeinschaft*, 120,000, -- DM ($52,000) for two years, 1974-1976, with H. Eckelmann.

3. "The Construction of a Boundary Layer Wind Tunnel," *Minta Martin Fund and the Department of Mechanical Engineering of the University of Maryland*, $25,000 for 1976, with D. Sallet and approximately $37,000 in various instrumentation grants later.

4. "An Experimental Investigation of the Structure of Vorticity in a Turbulent Boundary Layer," *National Science Foundation*, $90,000 for November 1977-November 1979.

5. "An Experimental Investigation of the Effects on the Near Wall Turbulent Boundary Layer Structure by Drag Reducing Flat Plate Surface Geometry Changes," *NASA Langley Research Center*, $25,000 for 1980.

6. "An Investigation of Bounded Turbulent Shear Flows Incorporating Their Vorticity Structure," *National Science Foundation*, $113,447 for May 1980-December 1982 with P. Bernard.

7. "Experimental Studies of the Mechanics of Viscous Drag Reduction in a Turbulent Boundary Layer Flow over a Flat Plate," *NASA Langley Research Center*, $50,000, for 1981.

8. "Experimental Studies of the Mechanics of Viscous Drag Reduction in Turbulent Boundary Layer Flow over a Flat Plate," *NASA Langley Research Center*, $40,000 for 1982.

9. "An Investigation of the Vorticity Structure of Bounded Turbulent Shear Flows," *National Science Foundation*, $151,500 for Oct. 1982-Mar. 1984.

10. "Characterization of Large Scale Turbulent Structures in Variable Density Flows," *National Bureau of Standards*, $64,970 for July 1986-June 1987.

11. "An Experimental Study of Vortical Structures in a Turbulent Boundary Layer Associated with Reynolds Stress Generation," *National Science Foundation*, $197,121 for Sept. 1986-Aug. 1988, with J.-L. Balint.

12. "Comparative Vorticity Measurements," *National Science Foundation*, $18,245 for June 1987-Aug. 1987, with J.-L. Balint.

13. "Engineering Research Equipment Grant: A 32-Bit Processor Based Super-mini Computer for Extensive Data Analysis and Digital Image Processing," *National Science Foundation*, $85,000 for June 1987-June 1988, with J.-L. Balint.

14. "Comparative Study of the Vorticity Field in Turbulent Flow: Theory, Experiment, Computations," *Department of Energy*, $393,000 for Dec. 1987-Dec. 1990, with J.-L. Balint.

15. "Science and Technology in Their Social Context," *GTE Foundation Lectureship Program*, $4,000 for Sept. 1988-May 1989.

16. "Studies of the Vortical Structure of the Turbulent Boundary Layer and its Control," *National Science Foundation*, $388,015 for Oct. 1989-Oct. 1992, with J.-L. Balint and U. Piomelli.

17. "Lagrangian Analysis of Containment Dispersal in Boundary Turbulent Shear Flows," *Department of Energy*, $396,000 for Feb. 1991-Feb. 1994, with P. Bernard and J.-L. Balint.

18. "Visualization and Imaging System for 3-D Analysis of Turbulent Flow Structures," *Department of Energy* University Research Initiative Instrumentation Program, $251,163 for Sept. 1991, with J.-L. Balint.

19. "An Investigation of Small Scales of Turbulence in a Boundary Layer at High Reynolds Numbers, *National Science Foundation*, $37,000 for June 1992 - August 1992, with J.-L. Balint and L. Ong.

20. "Vortical Structures in Turbulent Shear Flows and Their Implications for Subgrid Scale Modeling," *National Science Foundation*, $360,000 for Aug. 1993-Aug. 1996, With U. Piomelli.

21. "Experimental and Numerical Study of a 3D Shear-Driven Boundary Layer," *NASA Langley Research Center*, $25,000 for August 1993-August 1994, with U. Piomelli.

22. "The Velocity and Vorticity Fields of the Turbulent Near Wake of a Circular Cylinder," *NASA Ames Research Center* $20,000 for November 1, 1993-October 31, 1994, with L. Ong.

23. "Contaminant Dispersal in Bounded Turbulent Shear Flows," *Department of Energy*, $404,039 for May 1994-May 1997 with Peter Bernard and Lawrence Ong.

24. "An Experimental Investigation of the Small Scales of Turbulence Near the Ground in the Atmospheric Surface Layer," *National Science Foundation*, $30,000 for Aug. 1995-Oct. 1995, with L. Ong.

25. "Experimental and Numerical Studies of Vorticity Dynamics and Passive Scalar Mixing in a Turbulent Mixing Layer," *National Science foundation*, $380,000 for Aug. 1997-July 2001 with U. Piomelli and L. Ong.

26. "Concentration Flux Measurements and Modeling of Scalar Transport in Bounded Turbulent Shear Flows," *National Science Foundation*, $53,750 for Apr. 1998-Apr. 2001, with P. Bernard and L. Ong.

27. "Fundamental Thermal Fluid Physics of High Temperature flows in Advanced Reactor Systems," *Department of Energy*, $218,200 from Aug. 1999-Aug. 2002.

28. "Advanced computational Thermal Fluid Physics and its Assessment for Light Water Reactors and Supercritical Reactors," *Department of Energy*, $225,000 from Jan. 2002-Aug. 2005.

Total External Funding: $4,119,450

B. *Honors and Fellowships*

1. *Kirwan Undergraduate Education Award* of the University of Maryland, 2006

2. *2005 Maryland Professor of the Year*, Carnegie Foundation for the Advancement of Teaching and the Council for Advancement and Support of Education (CASE).

3. *University System of Maryland Board of Regents 2004 Faculty Award for Excellence in Teaching*

4. *Academy of Distinguished Engineering Alumni*, Georgia Institute of Technology, 1995.

5. *1992 Achievement Award for Contribution to Science* of the University of Maryland Sigma Xi

Chapter.

6. *Fellow of the American Physical Society* (citation: "for outstanding contributions to the subject of turbulent wall flows by designing new instruments and techniques, performing delicate experiments, and generating new concepts for the analysis of the Reynolds stress and vorticity fields"), 1989.

7. *Distinguished Scholar - Teacher*, University of Maryland, College Park, 1987-88.

8. *1984 Achievement Award in the Engineering Sciences* of the Washington Academy of Science.

9. *Bourse de Haut Niveau de Ministre d'Education et Research* (France) 1996-97 (sabbatical leave).

10. *Delegation Generale a la Research Scientific et Technique Fellowship* (France) 1981-82 (sabbatical leave).

11. *Max-Planck-Gesellschaft Fellowship*, 1971-72.

12. *British Ministry of Technology Fellowship*, 1966-1969.

13. *U.S. Geological Survey Fellowship*, 1962-1963.

14. *Armco Steel Scholarship*, 1959-1960.

VIII. University Service

1. Member of College of Engineering and MPSE PCC Committee, 1975-1976
2. Member of Executive Committee, Department of Mechanical Engineering
3. Member of Laboratory Committee, Department of Mechanical Engineering, 1976-1977
4. Member of Engineering Council, College of Engineering, 1976-1977
5. Responsible for Upgrading and Improving the Undergraduate Fluid Mechanics Laboratory, Department of Mechanical Engineering, 1976-1980
6. Chairman of the Laboratory Committee, Department of Mechanical Engineering, 1978-1980
7. EEEO Officer for Mechanical Engineering Department, 1979-1981
8. Member, University Senate, 1979-1981
9. Chairman, Fluid Dynamics Reviews, 1980-1981
10. Chairman of the Laboratory Committee, Department of Mechanical Engineering, 1981-1984
11. Member of Engineering Council, College of Engineering, 1982-1984
12. Member of University Equity Council, 1985-1986
13. Chairman, Physical Sciences Program, 1985-1986
14. Member, Senate Ad Hoc Committee on Undergraduate Education, 1986-1988
15. Member, College of Engineering Planning Committee, 1986-1987
16. Member, Campus Committee on Undergraduate General Education, 1988-1989
17. Chair, College Park Seminar Selection Committee, 1988-1990
18. Member, Search Committee for Dean of the Graduate School, 1989-1990
19. Chair, College of Engineering Women's Salary Equity Committee, 1988-1990
20. Member, Search Committee for Chairman of the Department of Mechanical Engineering, 1990-1991
21. Member, Staff and Faculty Service Award Committee, 1990-1991
22. Member, College of Engineering Appointments, Promotion and Tenure Committee, 1990-1992, Chair, 1991-1992
23. Member, University Senate Programs, Courses and Curriculum Committee, 1991-1992
24. Chair, Department of Mechanical Engineering Graduate Program Review Committee, 1993-94
25. Member, College of Engineering Awards Committee
26. Member, Graduate Council, 1994-1998
27. Member, Advisor Council of College Park Scholars Program 1995-96, 1998-1999
28. Member, Ad Hoc Salary Grievance Committee for Mathematics Department, 1995
29. Chair, Internal Review Committee for Aerospace Engineering Department, 1995
30. Member, Graduate Task Force/Middle States Accreditation Review, 1996

31. Member, Graduate Council PCC Committee, 1997-2000
32. Chair, Department of Mechanical Engineering APT Committee, 1993-1998
33. EEEO Officer of Department of Mechanical Engineering, 1999-2001
34. Director, College Park Scholars Program/Science Technology and Society, 1999-2002
35. Director, Undergraduate Certificate Program in Science, Technology and Society, 1999-2002

36. Compliance Officer of Department of Mechanical Engineering, 1999-2001
37. Member, University Honors Advisory Board, 2002 - present
38. Member, Provost's Review Committee for Dean of Undergraduate Studies, 2002-2003
39. Member, Advisory Committee of Undergraduate Studies Research Center, 2002 - 2004
40. Member, Program Committee of East Asian Studies Program, 2002- 2004
41. Member, CORE Working Group on interdisciplinary courses 2002 - 2005
42. Member, National Scholarships Selection Committee, 2001 - present
43. Member, Mechanical Engineering Department Awards Committee, 2002-2003, Chair 2004 - present
44. Member, Mechanical Engineering Department /Reliability Engineering Program Integration Committee, 2002
45. Member, Search Committee for the Director of the University Honors Program, 2003
46. Member, Search Committee for the Associate Provost and Dean of Undergraduate Studies, 2003
47. Member, Graduate Research Board, 2004 – 2006
48. Member, Undergraduate Studies, Living-Learning Program Committee, 2004 - present
49. Member, University Orientation Review Committee, 2005
50. Member, Churchill Scholarship Selection Committee, 2005 - present
51. Member, Burgers Board, 2004 – 2005, Chair, 2006 – present
52. Member, Search Committee for Assoc. Dean of the Clark School of Engineering
53. Member, President's Awards Selection Committee, 2006-present.
54. Member, Dean of Engineering Strategic Planning Committee, 2007
55. Member, Review Committee for the ISR Director, 2007
56. Chair, Selection Committee for the Kirwan Undergraduate Education Award, 2007
57. Member, CORE Campus Strategic Plan Subcommittee, 2007-2008

IX. Courses Taught

A. *Undergraduate*

Statics
Dynamics
Engineering Analysis
Fluid Mechanics I & II
Fluid Mechanics Laboratory
Measurements Laboratory
Engineering Experimentation
Engineering Honors Seminars
University Honors Seminars
College Park Scholars/Science, Technology and Society Colloquia
Gemstone Program Seminars

B. *Graduate*

Fundamentals of Fluid Mechanics
Viscous Flow
Physics of Turbulence
Current Topics in Fluid Mechanics
Engineering Experimentation

X. Publications

A. *Books &Educational Media*

1. *Social Responsibilities in Engineering and Science*, (255 pages) published by Prentice-Hall, New York (1987), co-authored and edited with R. H. McCuen.

2. *Turbulent Flow: Measurement, Analysis and Prediction*, (495 pages) published by John Wiley & Sons, Inc., New York (2002), co-authored with Peter S. Bernard

3. *Multi-media Fluid Mechanics* (2nd Edition), edited by G.M. Homsey, published by Cambridge University Press (2008), Turbulence Module co-produced with James J. Riley

B. *Journal Articles*

1. Franklin, R.E. and Wallace, J.M., "Absolute Measurements of Static-Hole Error Using Flush Transducers", *Journal of Fluid Mechanics*, (1970), Vol. 42, p. 33-48.

2. Wallace, J.M., Eckelmann, H. and Brodkey, R.S., "The Wall Region in Turbulent Shear Flow", *Journal of Fluid Mechanics*, (1972), Vol. 54, p. 39-48.

3. Brodkey, R.S., Nychas, S.G., Taraba, J.L. and Wallace, J.M., "Turbulent Energy Production, Dissipation and Transfer", *Physics of Fluids*, (1973), Vol. 16, No. 11, pp. 2010-2011.

4. Brodkey, R.S., Wallace, J.M. and Eckelmann, H., "Some Properties of Truncated Turbulence Signals in Bounded Shear Flows", *Journal of Fluid Mechanics*, (1974), Vol. 63, pp. 209-224.

5. Wallace, J.M. and Brodkey, R.S., "Reynolds Stress and Joint Probability Density Distributions in the u-v Plane of a Turbulent Channel Flow", *Physics of Fluids*, (1977), Vol. 20, No. 3, pp. 351-355.

6. Wallace, J.M., Brodkey, R.S. and Eckelmann, H., "Pattern Recognized Structures in Bounded Shear Flows", *Journal of Fluid Mechanics*, (1977), Vol. 83, pp. 673-693.

7. Eckelmann, H., Nychas, S.G., Brodkey, R.S. and Wallace, J.M., "Vorticity and Turbulence Production in Pattern Recognized Turbulent Flow Structures", *Physics of Fluids*, (1977), Vol. 20, pp. S225-231.

8. Vukoslavcevic, P. and Wallace, J.M., "The Influence of Velocity Gradients on Measurements of Velocity and Streamwise Vorticity with Hot-Wire X-Array Probes:, *Review of Scientific Instruments*, (1981), Vol. 52 (6), pp. 869-879.

9. Morel, R., Rey, C. and Wallace, J.M., "The Evolution of the Thermal Field in a Turbulent Wake Downstream from an Asymmetrically Heated Plate", *Physics of Fluids*, Vol 26, pp. 416-421 (1983).

10. Fleischmann, S.F. and Wallace, J.M., "The Mean Period of Organized Structures in Transitional and Developed Bounded Turbulent Shear Flows", *American Institute of Aeronautice & Astronautics Journal*, (1984), Vol. 22, pp. 766-769.

11. Wallace, J.M., "A Review: The Measurement of Vorticity in Turbulent Flows", *Experiments in Fluids*, (1986) Vol. 4, pp. 61-71.

12. Kit, E., Tsinober, A., Balint, J.-L., Wallace, J.M. and Levich, E., "An Experimental Study of Helicity Related Properties of Turbulent Flow Past a Grid", *Physics of Fluids*, (1987), Vol. 30, pp. 3323-3325.

13. Kit, E., A. Tsinober, M. Teitbel, J.-L. Balint, J. M. Wallace and E. Levich, "Vorticity Measurements in Turbulent Grid Flows," *Fluid Dynamics Research*, (1988), Vol. 3, pp. 289-294.

14. Piomelli, U., Balint, J.-L., and Wallace, J.M., "On the Validity of Taylor's Hypothesis for Wall-Bounded Turbulent Flows", *Physics of Fluids*, (1989) Vol. A1 (3), pp. 609-611.

15. Vukoslavcevic, P., Balint, J.-L., and Wallace, J.M., "A multi-sensor Hot-Wire Probe to Measure Vorticity and Velocity in Turbulent Flows", *Jour. Fluids Engineering*, (ASME), (1989), Vol. 111, pp. 220-224.

16. Vukoslavcevic, P., Wallace, J.M., and Balint, J.-L., "The Velocity and Vorticity Vector Fields of a Turbulent boundary Layer, Part I. Simultaneous Measurement by Hot-Wire Anemometry", *Jour. of Fluid Mechanics*, (1991), Vol. 228, pp. 25-51.

17. Balint, J.-L., Wallace, J.M., and Vukoslavcevic, P., "The Velocity and Vorticity Vector Fields of a Turbulent Boundary Layer, Part II. Statistical Properties", *Jour. of Fluid Mechanics*, (1991), Vol. 228, pp. 53-86.

18. Vukoslavcevic, P., Wallace, J.M., and Balint, J.-L., "On Viscous Drag Reduction Using Streamwise Aligned Riblets", *American Institute of Aeronautics & Astronautics Journal* (1991), Vol. 30 (4), pp. 1119-1122.

19. Wallace, J.M., Balint, J.-L., and Ong., L., "An Experimental Study of Helicity Density in Turbulent Flows", *Physics of Fluids* (1992), Vol. 4(9), pp. 2013-2026.

20. Piomelli, U., Ong, L., Wallace J. and Ladhari, F., "Reynolds Stress and Vorticity in Turbulent Wall Flows," *Applied Scientific Research*, (1993), Vol. 51, pp. 365-370.

21. Marasli, B., Nguyen, P. and Wallace, J.M., "A Calibration Technique for Multiple-Sensor Hot-Wire Probes and Its Application to Vorticity Measurements in the Wake of a Circular Cylinder," *Experiments in Fluids*, (1993), Vol. 15, No. 3, pp. 209-218.

22. Park, S.-R. and Wallace, J.M., "The Influence of Instantaneous Velocity Gradients on Turbulence Properties Measured with Multi-Sensor Hot-Wire Probes," *Experiments in Fluids*, (1993), Vol. 16, pp. 17-26.

23. Park, S.-R. and Wallace, J.M., "Flow Field Alteration and Viscous Drag Reduction by Riblets in a Turbulent Boundary Layer," *American Institute of Aeronautics & Astronautics Journal*, (1994), Vol. 32, No. 1. pp. 31-38.

24. Gorski, J.J., Wallace, J.M. and Bernard, P.S., "The Enstrophy Equation Budget of Bounded Turbulent Shear Flows", *Physics of Fluids* (1994), Vol. 6 (9), pp. 3197-3199.

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25. Ong, L. and Wallace, J., "The Velocity Field of the Turbulent Very Near Wake of a Circular Cylinder", *Experiments in Fluids* (1996), Vol. 20, No. 6, pp. 441-453.

26. Murray, J.A., Piomelli, U. and Wallace, J.M., "Spatial and Temporal Filtering of Experimental Data for apriori Studies of Subgrid-scale Stresses," *Physics of Fluids* (1996), Vol. 8, pp. 1978-1980.

27. Vukoslavcevic, P. and Wallace, J.M., "A Twelve-sensor Hot Wire Probe to Measure the Velocity and Vorticity Vectors in Turbulent Flow," *Measurement Science and Technology* (1996), Vol. 10, pp. 1451-1461.

28. Ong, L. and Wallace, J.M., "Joint Probability Density Analysis of the Structure and Dynamics of the Vorticity Field of a Turbulent Boundary Layer," *Journal of Fluid Mechanics* (1998), Vol. 367, pp. 291-328.

29. Vincont, J.-Y., Simoens, S., Ayrault, M. and Wallace, J.M., "Passive Scalar Dispersion in a Turbulent Boundary Layer from a Line Source at the Wall and Downstream of an Obstacle," *Journal of Fluid*

Mechanics (2000), Vol. 424, pp. 127-167.

30. Balaras, E., Piomelli, U. and Wallace, J.M., "Self-Similar States in Turbulent Mixing Layers," *Journal of Fluid Mechanics* (2000), Vol. 446, pp. 1-24.

31. Vukoslavcevic, P. V. and Wallace, J. M., "The Simultaneous Measurement of Velocity and Temperature in Heated Turbulent Air Flow using Thermal Anemometry," *Measurement Science and Technology* (2002), Vol. 13, pp. 1615 - 1624.

32. Petrovic, D. V., Vukoslavcevic, P. V. and Wallace, J.M., "The Accuracy of Turbulent Velocity Component Measurements by Multi-Sensor Hot-Wire Probes: A New Approach to an Old Problem," *Experiments in Fluids* (2003), Vol. 34, pp. 130 - 139.

33. Vukoslavcevic, P. V, Petrovic, D. V. and Wallace, J.M., "An Analytical Approach to the Uniqueness Problem of Hot-Wire Probes to Measure Simultaneously Three Velocity Components," *Measurement Science and Technology (*2004), Vol. 15, pp. 1848-1854.

34. Vukoslavcevic, P. V, Radulovic, I. M. and Wallace, J.M., "Testing of a Hot- and Cold-Wire Probe to Measure Simultaneously the Speed and Temperature in Supercritical CO_2 Flow," Experiments in Fluids (2005), Vol. 39(4), 703 - 711.

35. Diorio, J., Kelley, D. H. and Wallace, J.M., "The Spatial Relationships between Dissipation and Production Rates and Vortical Structures in Turbulent Boundary and Mixing Layers" *Physics of Fluids* (2007), Vol. 19, 035101, 1-8.

36. Simoens, S., M. Ayrault and Wallace, J. M., "The Flow across a Street Canyon of Variable Width- Part I: Kinematic Description," *Atmos. Environ*. (2007), Vol. 41, pp. 9002-9017.

37. Simoens, S.and Wallace, J. M., "The Flow Across a Street Canyon of Variable Width- Part II: Scalar Dispersion from a Street Level Line Source" *Atmos. Environ*. (2008), Vol. 42, pp. 2489-2503.

38. Wallace, J.M. and Ong, L., "Local Isotropy of the velocity and vorticity fields in a boundary layer at high Reynolds number," *Physics of Fluids (2008),* Vol. 20, 101506. pp 1-7

39. Vukoslavcevic, P.V., Beratlis, N., Balaras, E., Wallace, J.M. and Sun, O., "On the spatial resolution of velocity and velocity gradient-based turbulence statistics measured with multi-sensor hot-wire probes, " *Exp. In Fluids* (2008), Vol. 46, pp. 109-119.

40. Folz, A. and Wallace, J. M., "Near-Surface Turbulence in the Atmospheric Surface Layer," *Physica D* (2009), doi: 10.1016/j.physd.2009.06.014.

41. Li, N., Balaras, E. and Wallace, J.M., "Passive Scalar Transport in a Turbulent Mixing Layer," accepted for publication in *Flow, Turbulence and Combustion* (2010).

42. Petrovic, D. V., Vukoslavcevic, P. V. and Wallace, J.M, "Enlarging the uniqueness cone of the nine sensor T- configuration probe to measure the velocity vector and the velocity gradient tensor. To be published in Meas. Sci. & Tech.

C. *Invited Articles & Book Chapters*

1. Brodkey, R.S., Eckelmann, H., Nychas, S.G. and Wallace, J.M., "Structuren in der Turbulenten Wandbegrezten Stromung", in *50 Jahre Max-Planck-Institut fur Stromungsforschung, 1925-1975, Festschriff der Max-Planck-Institut fur Stromungsforschung,* Gottingen (1975), pp. 145-154.

2. Wallace, J.M., "On the Structure of Bounded Turbulent Shear Flow: A Personal View:, in *Developments in Theoretical and Applied Mechanics*, (ed. T.J. Chung & G.R. Karr) Vol. XI (1982), pp. 509-521.

3. Wallace, J.M., "The Vortical Structure of Bounded Turbulent Shear Flow", in *Flow of Real Fluids: Lecture*

Notes in Physics (1985), (eds. G. Meier and F. Obermeier), Vol. 235, pp. 253-268.

4. Foss, J.F. and Wallace, J.M., "The Measurement of Vorticity in Transitional and Fully Developed Turbulent Flows", in *Advances in Fluid Mechanics Measurements: Lecture Notes in Engineering*, (1989), (ed. M. Gad-el-Hak), Springer-Verlag, pp. 263-321.

5. Wallace, J.M. and Hussain, F., "Coherent Structures in Turbulent Shear Flows", *Appl. Mechanics Rev.*, (1990), Vol. 43 (5), pp. S203-S209.

6. Wallace, J.M. and Foss, J.F., "The Measurement of Vorticity in Turbulent Flows," in *Annual Reviews of Fluid Mechanics*, (1994), Vol. 27, pp. 469-514.

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11. Wallace, J.M., "Twenty years of Experimental and DNS Access to the Velocity Gradient Tensor: What have we learned about Turbulence? ," *Physics of Fluids* (2009), Vol. 21, pp. 021301:1-17, and based on an invited lecture given at the 60th Annual Meeting of the American Physical Society/Divison of Fluid Dynamics held in Salt Lake City, Utah, November 18-20, 2007.

12. Wallace, J.M. and Vukoslavcevic, P. V. "Experimental Measurements of the Velocity Gradient Tensor," *Annual Review of Fluid Mechanics* (2010), Vol. 42, pp. 157-181.

D. *Refereed Conference Proceedings*

1. Kastrinakis, E.G., Wallace, J.M., Willmarth, W.W., Ghorashi, B. and Brodkey, R.S., "On the Mechanism of Bounded Turbulent Shear Flows", *Lecture Notes in Physics*, Vol. 75, Springer-Verlag, Berlin, Heidelberg & New York, (1978), pp. 175-189.

2. Eckelmann, H., Wallace, J.M. and Brodkey, R.S., "Pattern Recognition, A Means for Detection of Coherent Structures in Bounded Shear Flows", *Proceedings of the DISA Dynamic Flow Conference*, (1978), pp. 161-172.

3. Eckelmann, H. and Wallace, J.M., " A Comparison of Characteristic Features of Coherent Turbulent Structures Found Using the variable Interval Time Average (VITA) Technique and Using the Pattern Recognition Technique", *Lecture Notes in Physics*, (1981), 136, pp. 292-303, Springer Verlag, Berlin, Heidelberg & New York.

4. Wallace, J.M. and Vukoslavcevic, P., "Measurement of the Structure of the Streamwise Vorticity Field in a Turbulent boundary Layer", in *Structure of Turbulence in Heat and Mass Transfer*, (ed. Z.P. Zaric), (1982), Hemisphere Publishing Corp., Washington, D.C., pp. 29-41.

5. Hooshmand, A., Youngs, R., Wallace, J.M. and Balint, J.-L., "An Experimental Study of changes in the Structure of a Turbulent Boundary Layer due to Surface Geometry Changes". (1983), *American Institute of*

Aeronautics & Astronautics Paper No. 83-0230.

6. Wallace, J.M., "A Survey of Methods to Measure Vorticity in Turbulent Flows", *Proc. of Fourth ASCE-EMD Specialty Conference*, (1983), Vol. II, p. 1198-1201.

7. Wallace, J.M., Balint, J.-L., Mariaux, and Morel, R., "Observations on the Nature and Mechanisms of the Structure of Turbulent Boundary Layers", *Proc. of Fourth ASCE-EMD Specialty Conf.*, (1983), Vol. II,p. 1250-1253.

8. Wallace, J.M., "Observations on the Nature and Mechanism of the Bounded Turbulent Shear Flow Structure", in *Turbulence and Chaotic Phenomena in Fluids*, (ed. by T. Tatsumi) North-Holland Publishing Co. (1983), pp. 447-452.

9. Wallace, J.M., Balint, J.-L., Ladhari, F. and Morel, R., "Applications of Image Processing Analysis to the Study of the Turbulent Boundary Layer Structure", *Flow Visualization III*, (ed. W.J. Yang), Hemisphere Pub. Corp. (1985), pp. 249-253.

10. Balint, J.-L, Vukoslavcevic, P. and Wallace, J.M., "A Study of the Vortical Structure of the Turbulent Boundary Layer", in *Advances in Turbulence*, (ed. by G. Comte-Bellot and J. Mathieu), (1987), Springer-Verlag, pp. 456-464.

11. Wallace, J.M. and Balint, J.-L, "Viscous Drag Reduction Using Streamwise Aligned Triangular Riblets: Survey and New Results", in *Turbulence Management* and Relaminarsation, (1987) Springer-Verlag, ed. by H.W. Liepmann and R. Narasimha, pp. 133-147.

12. Balint, J.-L, Bernard, P.S., Vukoslavcevic, P. and Wallace, J.M., "Measurements of Velocity-Vorticity Correlations in a Turbulent Boundary Layer with a Multi-Sensor Hot-Wire Probe", *Proceedings of Int. Conf. on Fluids Mechanics*, (1987), Peking Univ. Press, pp. 73-78.

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14. Balint, J.-L., Vukoslavcevic, P., and Wallace J.M., "The Transport of Enstrophy in a Turbulent Boundary Layer", in *Near Wall Turbulence: 1988 Zoran Zaric Memorial Conference, (eds*, S. J. Kline and N. Afgan), (1990), Hemisphere Publ. Corp., pp. 952-950.

15. Balint, J.-L., Vukoslavcevic, P., and Wallace, J.M., "The Statistical Properties of the Vorticity Field of a Two-Stream Mixing Layer:, in *Advances in Turbulence 2*, (1989), (eds, H. Fiedler & H.H. Ferholz), Springer-Verlag, pp. 74-78.

16. Wallace, J.M. and Balint, J.-L, "An Experimental Study of Turbulence and Related Properties in Turbulent Flows", in *Topological Fluid Mechanics*, (1990), (eds. Moffat, H.K. and Tsinober, A.), Cambridge University Press, pp. 585-597.

17. Muck, K.C., Wallace, J.M., and Pitts, W.M., "Simultaneous, Real-time Measurements of Concentration and Velocity in Turbulent Flows" in *Applications of Laser Techniques in Fluid Mechanics*, (ed. by R.J. Adrian and J. Whitelaw), (1991), Springer-Verlag, in press.

18. Nguyen, P.M., Marasli, B. and Wallace, J.M. (1993), "The Vortical Structure of the Neqr Wake of a Circular Cylinder," in *Bluff-body Wakes Dynamics Instabilities*, (Proc. Of IUTA Symp., Gottingen, Sept. 1992, Eds., H. Eckelmann, J.M.R. Grahm, P. Huerre, P.A. Monkewitz), Springer-Verlag, Berlin, 81-84.

19. Nguyen, P.N., Marasli, B. and Wallace, J.M., "The Vortical Structure of the Near Wake of a Circular Cylinder," Proc of ASME Symp. On Separated Flows, Washington, D.C. (1993)

20. Park, S.-R. And Wallace, J.M., "Flow Alteration and Viscous Drag Reduction by Riblets in a Turbulent Boundary Layer," in *Near-Wall Turbulent Flows* (1993), (Eds., So, R.M.C., Speziele, G.C. and Launolev, B.E.), Elseviere, pp. 749-760.

21. Klewicki, J.C., Foss, J.F. and Wallace, J.M., "High Reynolds Number Boundary Layer Turbulence in the Atmospheric Surface Layer above Western Utah's Salt Flats," Proc. Of NSF International Workshop on Ultra-High Reynolds Number Flows (1998).

22. Ong, L. and Wallace, J., "Local Isotropy of the Vorticity Field in a Boundary Layer at High Reynolds Number," in *Advancse in Turbulence 5*, (1995), (ed. E. Benzi) Kluwer Academic Pub., pp. 392-397.

23. Balaras, E., Piomelli, U. and Wallace, J.M., "Large-Eddy Simulations of Mixing Layers," in *Advances in Turbulence 8*, (2000), (ed. C. Dopazo) Intern. Ctr. For Num. Methods in Engr. (CIMNE), Barcelona, pp. 535-538.

24. Vincont, J.-Y., Simoens, S., Ayrault, M. and Wallace, J.M., "Passive Scalar Dispersion in a Turbulent Boundary Layer from a Line Source Downstream of an Obstacle on the Wall," in *Advances in Turbulence 8*, (2000), (eds. C. Dopazo) Intern. Ctr. For Num. Methods in Engr. (CIMNE), Barcelona, pp.235-238.

25. Vukoslavcevic, P, Beratlis, N, Balaras, E. and Wallace, J.M., " On the Accuracy of Velocity and Velocity Gradient Turbulence Statistics Measured with Multi-Sensor Hot-Wire Probes," in *Advances in Turbulence 11*, (2007), (ed. J.M.L.M. Palma, and A. S. Lopes) , Springer Verlag, Berlin, pp.588-590.

XI Additional Information

A. *Conference Presentations*

140 from 1969 to present

B. *Invited Lectures and Seminars*

The Absolute Error in Static Pressure Measurements

1. The Max-Planck-Institut Fur Stromungsforschung, November 1969
2. The Ohio State University, Department of Chemical Engineering, November 1971

The Structure of Turbulence in the Wall Region

1. The University of Maryland, Institute for Fluid Mechanics and Applied Mathematics, September 1971
2. The Johns Hopkins University, Department of Mechanics, September 1971
3. The University of Virginia, Department of Aerospace Engineering and Engineering Physics, October 1971
4. Stanford University, Department of Mechanical Engineering, October 1971
5. University of Southern California, Department of Aerospace Engineering, October 1971
6. Wright Patterson Air Force Base, Fluid Mechanics Research Laboratory, November 1971
7. The University of Michigan, Department of Aerospace Engineering, November 1971
8. Massachusetts institute of Technology, Department of Ocean Engineering, November 1971
9. Northeastern University, Department of Mechanical Engineering, November 1971
10. The State University of New York at Stonybrook, Department of Mechanics, February 1972

Statistical Properties of Truncated Turbulence Signals in Bounded Shear Flows and Their Interpretation in Terms of Coherent Motions

1. Massachusetts Institute of Technology, Department of Ocean Engineering, January 1972
2. The University of Southern California, Department of Aerospace Engineering, March 1973
3. The University of Michigan, Depart. of Aerospace Engineering, April 1973

Organized Motions in Turbulent Shear Flows - A Review Lecture

1. Massachusetts Institute of Technology, Department of Aeronautics and Astronautics, December 1974
2. University of Maryland, Department of Mechanical Engineering, December 1974

Pattern Recognition and the Structure of Vorticity in Turbulent Channel Flow

1. The University of Maryland, Fluid Dynamics Review, November 1976
2. The Johns Hopkins Applied Physics Laboratory, December 1977
3. The University of Maryland, Fluid Dynamics Reviews, April 1977
4. The Ohio State University, Department of Aerospace Engineering, May 1977
5. The University of Arizona, February 1978
6. The University of Eindhoven, Holland, October 1980

An Experimentally Verifiable Turbulence Closure

1. David Taylor Ship Research and Development Center, December 1978
2. The University of Houston, Department of Mechanical Engineering, February 1979

A Report on Two European Turbulence Conferences

1. Johns Hopkins University, November 1980

The Structure of the Turbulent Boundary Layer: A Personal View

1. The University of Gottingen, West Germany, November 1981
2. The University of Toulouse, France, December 1981
3. The University of Grenoble, France, January 1982
4. The University of Paris, France, January 1982
5. The Ecole Centrale de Lyon, France, January 1982
6. The State University of New York at Stonybrook, March 1982
7. Lehigh University, October 1982

The Vortical Structure of the Turbulent Boundary Layer and its Measurement

1. Michigan State University, April 1983
2. Ohio State University, May 1983
3. National Environmental Laboratory of Japan, August 1983
4. Catholic University, March 1984
5. Princeton University, March 1985
6. The University of California, Berkeley, November 1985
7. Stanford University, November 1985
8. California Institute of Technology, November 1985
9. The University of California, San Diego, November 1985
10. The University of Texas, Austin, November 1985
11. Yale University, February 1986
12. Brown University, February 1986
13. Massachusetts Institute of Technology, march 1986
14. Columbia University, March 1986
15. City College of New York, March 1986
16. University of Madrid (Spain) 4 AGARD Lectures, Nov. 1996

The Measurement of Vorticity in Turbulent Flow

1. The University of Maryland, Department of Mechanical Engineering, March 1982
2. Yokohama University, Japan, August 1983
3. Tokyo University, Japan, August 1983
4. NASA Ames Research Center, November 1985
5. University of Modena (Italy), June 1994
6. Von Karman Institut, Brussels (Belgium), April 1997

Some Historical Developments and Recent Advances in Turbulent Flow Research

1. The Washington Philosophical Society
2. The University of Maryland, Department of Chemical Engineering
3. The University of Maryland, Department of Mechanical Engineering

Image Processing in Turbulence Research

1. The University of Southern California, November 1985
2. Syracuse University, February 1987

Viscous Drag Reduction Using Streamwise Aligned Riblets

1. Indian Institute of Technology, Delhi, India, January 1987
2. Syracuse University, February 1987
3. University of Texas at Austin, October 1990

The Transport of Enstrophy in a Turbulent Boundary Layer

1. Tel-Aviv University, Israel, June 1988

The Vorticity Field in Turbulent Flows

1. Brown University, November 1988

The Vortical Structures of Turbulent Flows and their Measurement

1. Ecole Centrale de Lyon (France), June 1990
2. Max-Planck Institut fur Stromungsforschung (Gottingen, Germany), July 1990
3. Rutgers University, October 1990
4. Princeton University, April 1991

Experimentally Measured Properties of Vorticity and Helicity in Turbulent Flows

1. Pennsylvania State University, October 1991
2. Cornell University, October 1991

Joint Probability Analysis of the Structure of Vorticity in a Turbulent Boundary Layer

1. Stanford University, February 1992
2. University of Michigan, March 1992
3. Virginia Polytechnic and State University, 1996

Knowledge of the Vorticity Field in Turbulent Flows

1. Stanford University, August 1992

2. University of California at Berkeley, November 1994
3. Delft University (Netherlands), January 1995

Scalar Dispersal in Bounded Turbulent Shear Flows

1. University of Grenable (France), June 1994
2. ETH Zurich (Switzerland), July 1994

Local Istropy of the Vorticity Field in a Boundary Layer at High Reynolds Number

1. University Aix-Marseille (France), June 1994
2. University of Bologna (Italy), June 1994
3. Ecole Centrale de Lyon (France), July 1994
4. Johns Hopkins University, October 1994
5. City College of CUNY, February 1995
6. ONERA-Meudon (France), May 1997

The Phase-Averaged Velocity-Vorticity Measurements in the Wake of a Circular Cylinder

1. Ecole Centrale de Lyon (France), July 1994
2. Johns Hopkins University, October 1994
3. Georgia Institute of Technology, May 1995
4. University of Minnesota, May 1995
5. Georg-August Universitat, Gottingen (Germany), April 1997
6. Ecole Centrale de Lille (France), April 1997

Measurements of the Velocity and Vorticity Fields of the Near Surface Layer in the Atmosphere

1. Technical University of Delft (Holland), April 1997
2. Ecole Centrale de Lyon (France), July 1997

The Vortical Transport of Momemtum and Scalars in Turbulent Shear Flows

1. NASA Langley, July 1998
2. Symposium honoring Robert S. Brodkey on his 70th Birthday at the AICHE meeting, Nov. 1998
3. Kansas State University, February 1999

Twenty years of Experimental and DNS Access to the Velocity Gradient Tensor: What have we learned about Turbulence?

1. Johns Hopkins University, February 2008

C. Professional Service

1. Article and Proposal Reviewer:

    a) AIAA Journal
    b) Applied Mechanics Reviews
    c) Department of Energy
    d) Experimental Thermal & Fluid Science
    e) Experiments in Fluids
    f) International Journal of Heat and Fluid Flow
    g) Journal of Fluid Mechanics
    h) Journal of Fluids Engineering
    i) National Science Foundation
    j) Physics of Fluids
    k) Review of Scientific Instruments

l) The Petroleum Research Fund
m) The Proceedings of the Biennial Symposium on Turbulence
n) Israel Science Foundation
o) IEEE

2. Co-organizer, Proceedings Editor and Session Chairman of the *NSF Sponsored Delta Workshop on Turbulence Structure*, Ohio State University, March 1979, 1980, and 1981

3. Turbulence Session Organizer and Chairman for the *Eleventh Southeastern Conference on Theoretical and Applied Mechanics*, Huntsville, Alabama, April 1982

4. Panel Member for *National Science Foundation* New Investigators Award, 1979.

5. Member of the Doctoral Examining Committee for Petar Vukoslavcevic, "Veljko Vlahovic University", Titograd, Yugoslavia, June 1981

6. Member of the Doctorat de Troisime Cycle examining Committee of Mahmoud Hamadiche, Ecole Centrale de Lyon, December 1981

7. Member of the Doctorat de Troisime Cycle examining Committee of J. Ridonet, Ecole Centrale de Lyon, January 1983

8. Member of These d'Etat Committee of J.L. Balint, Ecole Centrale de Lyon, 1982-1985

9. Symposium Organizer, *U.S. National Congress of Applied Mechanics*, Tucson, Arizona, May 1990

10. Member, Steering Committee of Biennial Symposium on Turbulence

11. Member of Fellowship Committee, *American Physical Society Fluid Dynamics Division* 1993-1994

12. Member of *NSF CAREER Award Selection Panel*, 1995

13. Member of Nominating Committee, *American Physical Society, Fluid Dynamics Division*, 1995. Chairman, 1996

14. Member of *Frenkiel Prize Selection Committee, Physics of Fluids*, 1995

15. Vice Chairman of Fluid Dynamics Prize Committee, *American Physical Society, Fluid Dynamics Division*, 1996; Chairman 1997

16. Dissertation Reader for G. Lemonis, ETH Zurich, 1994

17. Dissertation Reader for C. Crawford, Princeton Univ., 1996

18. Dissertation Reader for L. Broquet, Ecole Centrale de Lyon, 1997

19. Chairman of *NSF CAREER Award Selection Panel*, 1997

20. Member, Fellowship Committee, *American Physical Society* 1998-99

21. Dissertation Reader for V. Lanspeary, University of Adelaide, 1998

22. Member of *NSF EMPOWER Award Selection Panel*, March 1999

23. Member of Lehigh Universiy Mechanical Engr. Dept. Visiting Committee, April 1999 – 2001

24. Chairman, Organizing Committee of the 2000 annual meeting of the *American Physical Society, Fluid Dynamics Division.*

25. Member, Program Committee, *American Physical Society, Fluid Dynamics Division*, 2001 – 2002.

26. Vice Chairman, *American Physical Society, Fluid Dynamics Division*, 2001 – 2002.

27. Chairman, Fellowship Committee, *American Physical Society, Fluid Dynamics Division*, 2001 – 2002.

28. Chair-Elect, *American Physical Society, Fluid Dynamics Division*, 2002 – 2003.

29. Chairman, Program Committee, *American Physical Society, Fluid Dynamics Division*, 2002 – 2003.

30. Member, US National Committee of the National Academies for Theoretical and Applied Mechanics, 2003-2007

31. Chair, *American Physical Society, Fluid Dynamics Division*, 2003 – 2004.

32. Past-Chair, *American Physical Society, Fluid Dynamics Division*, 2002 – 2006.