

March 2008

CURRICULUM VITAE

NAME	BIRTHDATE
Charles Dalton	June 17, 1935

EDUCATION

Ph.D.	University of Texas at Austin	1965	Engineering	Mechanics
M.S.	University of Houston	1963	Mechanical	Engineering
B.S.	University of Houston	1960	Mechanical	Engineering

PROFESSIONAL

Registered Professional Engineer, Texas

1980-present	Professor, Department of Mechanical Engineering, University of Houston.
2002-Spring	Lecturer, Rice University.
1981-1998	Associate Dean of Engineering, University of Houston.
1972-1980	Associate Professor, Department of Mechanical Engineering, University of Houston.
1973-1978	Consultant, 3 days per month, Brown & Root
1965-1972	Assistant Professor, Department of Mechanical Engineering, University of Houston.
1965-1971	Consultant, 1 day per week, Exxon Production Research Co.
1963-1965	Research Assistant, University of Texas at Austin.
1960-1963	Instructor, Department of Mechanical Engineering, University of Houston.

RESEARCH INTERESTS

Computational fluid dynamics directed toward unsteady flow past cylinders, vortex-induced vibration, water waves and wave forces on offshore platforms.

AWARDS

1980 Winner of the Kittinger Award as the best teacher in the University of Houston Cullen College of Engineering.

Recognition as one of the top ten teachers in the University of Houston Cullen College of Engineering eight different times.

Winner of the 1997 Claude L. Wilson Award from the South Texas Section of ASME for Lifetime Achievement as an Outstanding Engineering Educator.

Winner of the Dukler Outstanding Faculty Award from the UH Engineering Alumni Association, June, 2000.

President of the UH Chapter of Phi Kappa Phi, a national honor society, 2001-2002.

Received the 2002 Engineer of the Year Award from the South Texas Section of ASME.

Received an Outstanding Teacher Award for 2001-2002 from the Cullen College of Engineering, University of Houston.

Received a Special Service Accommodation from the Cullen College of Engineering, Fall 2002.

Recipient of the University of Houston Enron Teaching Excellence Award for Full Professors, 2003-2004.

PROFESSIONAL AFFILIATIONS

Life Fellow, ASME

Associate Fellow, AIAA

Member, ASEE

Member, Pi Tau Sigma

Member, Tau Beta Pi

SUPERVISION OF RESEARCH

Senior Honors Theses

1. Albert Lee Smith, Jr., A passive wheel rotator design for aircraft with retractable landing gear, 1986.
2. Ren, Liangcui, A design methodology for a wavy road as a means to control vehicle speed, 2007.
3. Vargas, Julian, A study of blockage effects on physical and numerical experiments for flow past a circular cylinder, 2007 (joint with G. Song)
4. Garza, Jorge, , 2008, (joint with G. Song)

M.S. Graduates

1. R.M. Raper, "Drag Force and Pressure Distribution on Cylindrical Protuberances Immersed in a Turbulent Channel Flow," August 1966, M.S.
2. H.L. McGill, "Flow Through Annuli of Fine Clearance with Decreasing Metering Length," August 1967, M.S.
3. A.J. Heinzer, "Experimental Investigation of the Wake of an Oscillating Cylinder," January 1968, M.S.
4. J.D. Bozeman, "A Flow Visualization Study of the Flow in the Entrance Region of an Annulus Formed Between Concentric Spheres", June, 1968, M.S.
5. B.J. Brookman, Jr., "Korotkoff Sounds: Effect of Vessel Elasticity on Sound Frequency," January 1969, M.S.
6. B.D. Couch, "Wedge Flow Over a Cylinder," August 1969, M.S.
7. L.E. McSpadden, Investigation of Mixture-Ratio Distribution in a Liquid Rocket Engine," January 1970, M.S.
8. F.H. Hamann, "The Force on Cylinders Oscillating Sinusoidally in Water," August 1970, M.S.
9. J.B. Wardell, "Effect of Vortex Shedding on a Cylindrical Column," May 1972, M.S.
10. Juan Szabo, "Drag on a Group of Cylinders," May 1972, M.S.
11. John P. Hunt, "The Fluid Resistance of Shrouded and Unshrouded Circular

Cylinders in a Oscillatory Flow," December 1973, M.S.

12. Bancha Chantranuvatana, "Time-Dependent Pressure Distributions in Oscillatory Flow," August 1974, M.S.
13. Jerry Borrer, "A Nonlinear Diffraction Study of Inertia Forces on a Circular Cylinder," August 1975, M.S.
14. James P. Westerheid, "The Lift Force on a Circular Cylinder Oscillating Sinusoidally in Water," August 1977, M.S.
15. Paul G. Johnson, "Model Investigation on the Effect of a Reef on an Ocean Wave," August 1977, M.S.
16. C.L. Redus, "The Use of Primitive Variables in the Numerical Cavity Problem," May 1980, M.S.
17. K. Bulsara, "Representation of a Breaking Ocean Wave Using a Vortex Sheet," May 1981, M.S.
18. K. Bickham, Flow Around Axisymmetrical Bodies with a Stern-mounted Propeller," August 1981, M.S.
19. K. Walyus, "The Approach and Landing Predictor: A Computer Simulation to Predict the Space Shuttle Orbiter Touchdown Conditions," December 1989, M.S.
20. J. Zhang, "A Numerical Comparison of the Morison Equation Coefficients for Sinusoidally and Nonsinusoidally Oscillating Flow," December 1991, M.S.
21. M. Cerimele, "Drag Minimization on a Body of Revolution with Fixed Volume," May 1992, M.S.
22. J. Lu, "Numerical Simulation of Unsteady Flow in an End-to-Side Anastomosis," May 1992, M.S.
23. G.N. Gilbert, "A Critical Study of Two-dimensional Numerical Simulations of Sinusoidally Oscillating Flows Around a Circular Cylinder," May, 1994, M.S.
24. S. Gopalkrishnan, "Numerical Experiments on the Steady Approach Flow past a Circular Cylinder," August, 1998, M.S.
25. Y. Xu, "Numerical Study of Shear Flow past a Circular Cylinder", May, 1999, M.S.

26. H. Al Jamal, "Two-dimensional Numerical Study with LES Modeling of VIV of a Circular Cylinder subjected to a Uniform Flow at a Moderate Reynolds Number", August, 2002, M.S.
27. Z. Leutwyler, "A Computational Study of the Flow Field, Resulting Force, and Aerodynamic Torque on a Butterfly Valve Operating in a Compressible Fluid", August, 2004, M.S.
28. S. Atluri, "A Numerical Investigation of the Near Wake Structure in the Forced Oscillations of a Circular Cylinder", August, 2004, M.S.
29. T. Rakshit, "Vortex-induced Vibration of Composite Risers at Moderate Reynolds Numbers", December, 2005, M.S.
30. V. Rao, "A Numerical Investigation of the Near Wake Structure in the Variable Frequency Forced Oscillation of a Circular Cylinder", December, 2005, M.S.
31. P. Josefsson, "Vortex-induced vibration of a variable-tension riser", August, 2006, M.S.

Ph.D. Graduates

1. E.G. Ward, "Sinusoidal Flow Around a Circular Cylinder," June 1968, Ph.D.
2. J.D. Bruner, "A Blood Pump for Closed-Chest Left Ventricular Bypass," January 1969, Ph.D.
3. H.J. Crowder, "On the Stability of Poiseuille Pipe Flow," May 1969, Ph.D.
4. J.D. Bozeman, "Numerical Solutions for Recirculating Flow in a Cavity," January 1972, Ph.D.
5. H. Pereira, "A Four-Equation Model for the Numerical Solution of the Turbulent Boundary Layer," May 1974, Ph.D.
6. M.F. Zedan, "Flow Around Axisymmetric Bodies: The Direct and Inverse Problems," May 1979, Ph.D.
7. S.J. Chen, "Development of the Interior Panel Method of Representing Flow Past Wings," August 1981, Ph.D.
8. W.E. Pinebrook, "Drag Minimization on a Body of Revolution," May 1982, Ph.D.

9. M. Khalifa, "Breaking Waves at the Interface of Two Slightly Viscous Fluids," December 1984, Ph.D.
10. C.L. Redus, "Single and Multiphase Flow Through Porous Media Using a Three-Dimensional Network Pore-Space Model," December, 1985, Ph.D.
11. C. Chung, "Nonlinear Dynamic Response of Submarine Pipelines in Contact with the Ocean Floor," December 1986, Ph.D.
12. J.M. D'Sa, "Dynamic Response of a Compliant Viscoelastic Material to an Impulsive Pressure Field," May 1988, Ph.D.
13. X. Wang, "A Numerical Study of Unsteady Flows past a Circular Cylinder," December 1989, Ph.D.
14. C.R. Justiz, "Wake Characterization: Full Flow Simulation of Space Structures in Low Earth Orbit," December 1991, Ph.D.
15. X. Sun, "Large Eddy Simulation of Flow over a Circular Cylinder," August 1994, Ph.D.
16. W. Zheng, "Oscillating Flow Past a Rectangular Cylinder," December 1994, Ph.D.
17. J. Zhang, "A Numerical Study of the Three-dimensional Unsteady Flows past a Circular Cylinder," May 1995, Ph.D.

Current PhD students

1. Helmi Al-Jamal (2008)
2. Pete Suthon (2008)
3. Medhat el Nasser (~ 2009)
4. Sampath Atluri (~ 2009)
5. Victor Shum (~ 2009)
6. Ahmed Ibrahim (~ 2009)

SPECIAL ACTIVITIES

Member, Governor's Energy Advisory Council, 1976-77.

Organized and Chaired Symposium on Fluid Mechanics in the Petroleum Industry, ASME Winter Annual Meeting, Houston, 1975.

Organized (with T. Morel) ASME Symposium on Aerodynamics of

Transportation, Niagra Falls, 1979, chaired 2 sessions.

Organized (with W. Swift) ASME Symposium on Vortex Flows, Winter Annual Meeting, Chicago, 1980.

Organized (with O. Griffin) ASME Symposium on Bluff Body Flows and Vortex Shedding, Winter Annual Meeting, Washington, D.C., 1981.

Chairman, Organizing Committee, National Fluid Dynamics Congress, Cincinnati, July 1988.

Session Organizer and Chairman, ASME Symposium on Unsteady Flows, Toronto, 1990.

Session Chairman and Organizer, ASME Symposium on Industrial Applications of Fluid Mechanics, WAM, Dallas, 1990.

Session Chairman (three sessions), Co-editor, and Co-organizer, Fourth International Symposium on Fluid-structure Interaction, etc., ASME/IMECE, Dallas, November, 1997, New Orleans (2002).

Session Chair, ASME/OMAE conferences in Trondheim (1991), Florence (1996), St. John's (1999), New Orleans (2000), Rio de Janeiro (2001), Oslo (2002).

Session Chair, **BBVIV2**, Marseille, France, 2000.

Session Chair, **BBVIV3**, Port Douglas, Australia, 2003.

Session Chair (two sessions), **FIV2004**, Paris, France, 2004.

Technical Committee, ASME/OMAE Symposium on CFD/VIV, Halkidiki, Greece, June 2005, Chaired two sessions.

Technical Committee, ASME/OMAE Symposium on CFD/VIV, Hamburg, Germany, June 2006, Chaired two sessions.

Technical Committee, ASME PVP 2006, Fifth International Symposium on Fluid-Structure Interactions, Vancouver, July, 2006. Chaired two sessions.

Technical Committee, ASME/OMAE Symposium on CFD/VIV, 2007, San Diego, Chaired one session.

Technical Committee, ASME/OMAE Symposium on CFD/VIV, 2008, Estoril, Portugal, Chaired two sessions.

Session Chair, ASCE Earth and Space Conference, Long Beach, CA, March 2008.

PUBLICATIONS

Refereed Journals

1. McGill, H., and C. Dalton, "Analytical and Experimental Investigation of Flow in a Hydraulic Jar," Journal of the Society of Petroleum Engineers, 8 (1968), p. 351.
2. Dalton, C., and F.D. Masch, "Effect of Secondary Flow on Drag Forces," Engineering Mechanics Journal of ASCE, 94 EM (1968), p. 1249.
3. Ward, E.G., and C. Dalton, "Sinusoidal Flow Around a Circular Cylinder," Journal of Basic Engineering, Trans. ASME, 91D (1969), p. 707.
4. Heinzer, A., and C. Dalton, "Wake Observations for Oscillating Cylinders," Journal of Basic Engineering, Trans. ASME, 91D (1969), p. 850.
5. Wiginton, C.L., and C. Dalton, "Incompressible Laminar Flow in the Entrance Region of a Rectangular Duct," Journal of Applied Mechanics, 92E (1970), 854-856.
6. Bozeman, J.D., and C. Dalton, "Flow in the Entrance Region of a Concentric Sphere Heat Exchanger," Journal of Heat Transfer, 94 (1968), 184-186
7. Brookman, B.J., C. Dalton, and L.A. Geddes, "The Relationship Between Vessel-Wall Elasticity and Korotkoff-Sound Frequency," Medical and Biological Engineering Journal, 8 (1970), pp. 149-158.
8. Crowder, H.J., and C. Dalton, "Hydrodynamic Stability of Poiseuille Pipe Flow," Journal of Computational Physics, 7 (1971), pp. 12-31.
9. Crowder, H.J., and C. Dalton, "Errors in the use of Nonuniform Mesh systems," Journal of Computational Physics, 7 (1971), pp. 32.
10. Dalton, C., and R.A. Helfinstine, "Potential Flow Past a Group of Circular Cylinders," Journal of Basic Engineering, Trans. ASME, 93D (1971), p. 636.
11. Dalton, C., "On the Allan and Vincenti Blockage Corrections in a Wind Tunnel," AIAA Journal, 9 (1971), p. 1864.
12. Hamann, F., and C. Dalton, "The Forces on a Cylinder Oscillating Sinusoidally in Water," Journal of Engineering for Industry, Trans. ASME,

93B (1971), p. 1197.

13. Helfinstine, R.A., and C. Dalton, "High-Speed Train Simulation Using Hydrodynamics", Journal of the Engineering Mechanics Division, ASCE, 98-EM2 (1972), 357-366.
14. Bozeman, J.D., and C. Dalton, "Numerical Study of Viscous Flow in a Cavity," Journal of Computational Physics, 12 (1973), p. 348.
15. Dalton, C., J.R. Howell, and C.J. Huang, "Conceptual Design of a Near Self-Supporting Lunar Colony," Astronautica Acta, 18 (Supplement) (1974), p. 149.
16. Helfinstine, R.A., and C. Dalton, "Unsteady Potential Flow Past a Group of Spheres," Computers and Fluids, 2 (1974), p. 99.
17. Tragesser, A., C. Dalton, and F.J. Kay, "An Improved Method of Offshore Structure Grouting," Journal of Petroleum Technology, April 1975, p. 495.
18. Dalton, M., and C. Dalton, "Engineering Teams Can Be OK," IEEE Transactions on Engineering Management, EM 23 (3) (1976).
19. Dalton, C., and Juan M. Szabo, "Drag on a Group of Cylinders," Journal of Pressure Vessel Technology, 99J (1977), p. 152.
20. Heenan, W., and C. Dalton, "Set Burner Air by Stack Analysis," Hydrocarbon Processing, February 1977.
21. Zedan, M.F., and C. Dalton, "Incompressible Irrotational, Axisymmetric Flow About a Body of Revolution: the Inverse Problem," Journal of Hydronautics, 12 (1978), p. 41.
22. Zedan, M.F., and C. Dalton, "Potential Flow Around Axisymmetric Bodies: The Direct and Inverse Problems," AIAA Journal, 16 (1978), p. 242.
23. Dalton, C., J.P. Hunt, and F. Hussain, "The Forces on a Cylinder Oscillating Sinusoidally in Water: Further Experiments," Journal of Pressure Vessel Technology, 100 (1978), p. 297.
24. Johnson, P.G., C. Dalton, and J.M. Nash, "Model Study of the Effect of a Reef on Ocean Waves," Journal of Engineering for Industry, Trans. ASME, 101B (1979), p. 153.
25. Zedan, M.R., and C. Dalton, "Viscous Drag Computation for Axisymmetric Bodies at High Reynolds Numbers," Journal of Hydronautics, 13 (1979), p. 52.

26. Zedan, M.R., and C. Dalton, "Higher Order Axial Singularity Distributions for Potential Flow about Bodies of Revolution," Computer Methods in Applied Mechanics and Engineering, 15 (1980), p. 295
27. Dalton, C., and B. Chantranuvatana, "Pressure Distributions Around Circular Cylinders in Oscillatory Flow," Journal of Fluids Engineering, 102 (1980), p. 191.
28. Dalton, C., "Inertia Coefficients for Riser Configurations," Journal of Energy and Technology, Trans. ASME, 102 (1980), p. 197.
29. Dalton, C., and M.F. Zedan, "Use of the Inverse Method to Determine Low- Drag Axisymmetric Shapes," Journal of Hydronautics, 15 (1981), p. 48.
30. Neidoroda, A.W., and C. Dalton, "A Review of the Fluid Mechanics of Ocean Scour," Ocean Engineering, 9 (1982), p. 159.
31. Chen, S.J., and C. Dalton, "The Unsteady Lifting Case by Means of the Interior-Singularity Panel Method," Journal of Aircraft, 19 (1982), p. 634.
32. Chen, S.J., and C. Dalton, "Theoretical and Experimental Approaches to the Geophone Spurious Frequency," Geophysical Prospecting, 31 (1983), p. 574.
33. Pinebrook, W.E., and C. Dalton, "Drag Minimization on a Body of Revolution through Evolution," Computer Methods in Applied Mechanics and Engineering, 39, (1983), p. 179.
34. Pinebrook, W.E., and C. Dalton, "The Evolution Strategy Applied to Drag Minimization on a Body of Revolution," Mathematical Modelling, 4 (1983), p. 439.
35. Khalifa, M., and C. Dalton, "Breaking Waves at the Interface of Two Slightly Viscous Fluids," Proceedings, Numerical Methods in Laminar/Turbulent Flow Conference, Swansea, England, 1985, Vol. 4, p. 1232.
36. Zedan, M.F., and C. Dalton, "The Inverse Method Applied to a Body of Revolution with an Extended Favorable Pressure Gradient Forebody," Communications in Applied Numerical Methods, 2 (1986), p. 113.
37. D'Sa, J.M., and C. Dalton, "Body of Revolution Comparisons for Axial and Surface Singularity Distribution," Journal of Aircraft, 23 (1986), p. 669.
38. Kheyrandish, K., C. Dalton, and J.H. Lienhard, "A Model for Fluid Flow During Saturated Boiling on a Horizontal Cylinder," Journal of Heat Transfer, 108 (1986), p. 485.

39. Dalton, C., and J.P. Lamb, "Fluids Engineering Education: Current Status and Future Directions," Journal of Fluids Engineering, 110 (1988), p. 1.
40. Wang, X., and C. Dalton, "Impulsively Started and Suddenly Stopped Viscous Flow Past a Circular Cylinder," Proceedings, Numerical Methods in Laminar/Turbulent Flow, Swansea, England, 1989, Vol. 6, p. 679.
41. Dalton, C., and X. Wang, "The Vortex Roll-up Problem Using Lamb Vortices for the Elliptically Loaded Wing," Computers and Fluids, 18 (1990), pp. 139-150.
42. D'Sa, J.M., and C. Dalton, "The Dynamic Response of Compliant Materials to an Impulsive Pressure Field," International Journal for Numerical Methods in Engineering, 29 (1990), pp. 811-831.
43. Wang, X., and C. Dalton, "Impulsively Started and Decelerated Viscous Flow Past a Circular Cylinder," International Journal for Numerical Methods in Fluids, 12 (1991), pp. 383-400.
44. Wang, X., and C. Dalton, "Oscillating Flow Past a Rigid Circular Cylinder: A Finite- Difference Study," Journal of Fluids Engineering, 113 (1991), pp. 377-383.
45. Walyus, K., and C. Dalton, "The Approach and Landing Predictor: A Computer Simulation to Predict the Space Shuttle Orbiter Touchdown Conditions," Journal of Spacecraft and Rockets, 28 (1991), pp. 478-485.
46. Sarpkaya, T., C. Putzig, D. Gordon, X. Wang, and C. Dalton, "Vortex Trajectories around a Circular Cylinder in Oscillatory Plus Mean Flow," Journal of Offshore Mechanics and Arctic Engineering, 114 (1992), pp. 291-298.
47. Zhang, J., C. Dalton, and X. Wang, "A Numerical Comparison of Morison Equation Coefficients for Low Keulegan-Carpenter Number Oscillatory Flows: Sinusoidal and Nonsinusoidal," Journal of Fluids and Structures, 7 (1993), pp. 39-56.
48. Justiz, C.R., R.M. Sega, C. Dalton, and A. Ignatiev, "Return Flux Contamination of an Outgassing Spacecraft in Low Earth Orbit," Journal of Thermophysics and Heat Transfer, 8 (1994), pp.802-804.
49. Justiz, C.R., R.M. Sega, and C. Dalton, "A Method for Near Field Computation of Coupled Weakly Ionized Plasma Flows in Low Earth Orbit", Journal of Computational Physics, 118 (1995), pp.278-293.
50. Chen, M.M., C. Dalton, L. Zhuang, "Force on a Circular Cylinder in an Orbital Flow at Low Keulegan-Carpenter Numbers," Journal of Fluids and Structures, 9 (1995), pp.617-638.

51. Cerimele, M.P., C. Dalton, and W.E. Pinebrook, "Drag Minimization on a Body of Revolution with Fixed Volume," Mathematical Modelling, 5 (1996), pp. 33-49.
52. Sun, X., and C. Dalton, "Application of the LES Method to an Oscillating Flow past a Circular Cylinder," Journal of Fluids and Structures, 10 (1996), pp. 851-872.
53. Zhang, J., and C. Dalton, "Interaction of a Steady Approach Flow and a Circular Cylinder undergoing Forced Oscillation," Journal of Fluids Engineering, 119 (1997), pp. 808-813.
54. Zhang, J., and C. Dalton, "Interaction of Vortex-induced Vibrations of a Circular Cylinder and a Steady Approach Flow at a Reynolds Number of 13,000" Computers and Fluids, 25 (1996), pp. 283-294.
55. Lu, X., and C. Dalton, "Calculation of the Timing of Vortex Formation from an Oscillating Circular Cylinder," Journal of Fluids and Structures, 10 (1996), pp.527-541.
56. Lu, X., C. Dalton, and J. Zhang, "Application of large eddy simulation to an oscillating flow past a circular cylinder," Journal of Fluids Engineering, 119 (1997), pp. 519-525.
57. Lu, X., C. Dalton, and J. Zhang, "Application of Large Eddy Simulation Flow past a Circular Cylinder," Journal of Offshore Mechanics and Arctic Engineering, 119 (1997), pp. 219-225.
58. Zhang, J. and C. Dalton, "A Three-dimensional Simulation of a Steady Approach Flow past a Circular Cylinder at Low Reynolds Number," International Journal of Numerical Methods in Fluids, 26, (1998), pp. 1003-1022.
59. Zhang, J. and C. Dalton, "The Onset of Three-dimensionality in an Oscillating Flow past a Fixed Circular Cylinder," International Journal of Numerical Methods in Fluids, 30 (1999), 19-42.
60. Zheng, W. and C. Dalton, "Numerical Prediction of Force on Rectangular Cylinders in Oscillating Viscous Flow," Journal of Fluids and Structures, 13 (1999), 225-249.
61. Dalton, C., "The LES Calculation of Flow Past a Circular Cylinder at Moderate Reynolds Numbers", Calculation of Complex Turbulent Flows of Computational Mechanics Publications, edited by G. Tzabiras, 2001, 39-92.

62. Dalton, C., Y. Xu, and J.C. Owen, "The suppression of lift due to vortex shedding on a circular cylinder at moderate Reynolds numbers,, Journal of Fluids and Structures, 15 (2001), 316-327.
63. Xu, Y. and C. Dalton, " Computation of Force on a Cylinder in a Shear Flow", Journal of Fluids and Structures, 15 (2001), 941-954.
64. Dalton, C. "Retaining U.S. students for engineering graduate study", to appear in the Journal of Design and Manufacturing Automation, 2004.
65. Dalton, C and W. Zheng, "Numerical solutions of a viscous uniform approach flow past square and diamond shaped cylinders", Journal of Fluids and Structures, 18 (2003), 455-465.
66. Al Jamal, H. and C. Dalton, "Calculation of Vortex-induced Vibration at Moderate Reynolds Numbers", Journal of Fluids and Structures, 19 (2004), 73-92.
67. Al-Jamal, H. and C. Dalton, "The Contrast in Phase Angles between Forced and Self-excited Oscillations of a Circular Cylinder", Journal of Fluids and Structures, 20 (2005), 467-482.
68. Hu, J.C., Y. Zhou and, C. Dalton, "Effect of the corner radius on the near wake of a square prism", Experiments in Fluids, 40 (2006), 106-118.
69. Leutwyler, Z. and C. Dalton, "A CFD Study to Analyze the Aerodynamic Torque, Lift, and Drag for a Butterfly Valve in the Mid-Stroke Position", Journal of Fluids Engineering, 128 (2006), 1074-1082.
70. Leutwyler, Z. and C. Dalton, "A CFD study of the flow field , resultant force. and aerodynamic torque on a symmetric disk butterfly valve in a compressible fluid" accepted (2008) for the Journal of Pressure vessels and Piping, ASME.
71. Rakshit, T., S. Atluri, S., C. Dalton, "VIV of a Composite Riser at Moderate Reynolds Number using CFD", accepted (2008) for the Journal of Offshore Mechanics and ArcticEngineering, ASME.
72. Atluri, S., V.K. Rao, C. Dalton, "A numerical investigation of the near wake structure in the variable frequency forced oscillation of a circular cylinder", under review by the Journal of Fluids and Structures.
73. Josefsson, P., C. Dalton, "Vortex-induced vibration of a variable-tension riser", in preparation for the Journal of Fluids and Structures.
74. Dalton, C., "CFD Applied to Marine Hydrodynamics", Chapter 6 in a book on Marine Hydrodynamics, to be published in 2008 by Cambridge University

Press. (T. Sarpkaya is the author of the book.)

Conference Proceedings

Dalton, C., L.O. Billig, and J.L. Schweppe, "Radiant and Convective Heat Transfer Flowing Gas to the Inside Surface of a Tube," ASME Paper 64-WA/HT-27.

Dalton, C., J.R. Howell, and C.J. Huang, "Flower Gardens Ocean Research Center: Summary of a NASA Systems Design Project," Proceedings of 1972 Marine Technology Society Annual Meeting, Washington, D.C., September 1972.

Dalton, C., J.R. Howell, and C.J. Huang, "Implementing the Systems Approach in Planning an Offshore Research Center," Proceedings of the International Symposium on Systems Engineering and Analysis, Purdue University, Lafayette, Indiana, October 1972.

Tragesser, A., C. Dalton, and F.J. Kay, "Pressure Grouting - An Improved Method of Offshore Structure Grouting," Proceedings, Offshore Technology Conference, 1974.

Dalton, C., J.R. Howell, and C.J. Huang, "FGORC - Open Ocean Research Laboratory," Ocean Industry, August 1972.

Dalton, C., and C.J. Huang, "Energy Recovery from Solid Waste," Proceedings, Houston Technology Transfer Conference, September 1974.

Dalton, C., and M. Dalton, "Nonverbal Communication in Engineering Teams," Mechanical Engineering, December 1975.

Wardell, J.B., and C. Dalton, "Vortex-Shedding Effects on the AISC Beam-Column Design Formula," ASME Paper 75-Pet-29.

Dalton, C., and James M. Nash, "Wave Slam on Horizontal Members of an Offshore Platform," 1976 Offshore Technology Conference, Houston, May 1976.

Dalton, C., John P. Hunt, and F. Hussain, "The Forces on a Cylinder Oscillating Sinusoidally in Water: II," Proceedings, 1976 Offshore Technology Conference, Houston, May 1976.

Dalton, M., and C. Dalton, "Personal Communication: The Space Factor," Machine Design, September 1976.

Dalton, M., and C. Dalton, "How Space and Environment Affect Your Communication," *Today's Manager*, 3, 1977, p. 37.

Zedan, M.F., and C. Dalton, "The Inverse Problem for Axisymmetric Aerodynamic Shapes," Proceedings, AIAA Conference on Airships, Melbourne, Florida, August 1977.

Neidoroda, A.W., C. Dalton, and R.G. Bea, "The Descriptive Physics of Scour in the Ocean Environment," Proceedings, Offshore Technology Conference, 1981, Paper No. OTC 4145.

Kareem, A., and C. Dalton, "Dynamic Effects of Wind on Tension Leg Platforms," Proceedings, Offshore Technology Conference, 1982, Paper No. OTC 4229.

Kareem, A., and C. Dalton, "Wind Loading on Tension Leg Platforms," Proceedings, Ocean Structural Dynamics Symposium, Oregon State University, September 1982.

Neidoroda, A.W., and C. Dalton, "Seabed Scour about Discrete Structures," Chap. 8 in *Cold Ocean Resources*, Engineering Memorial, University of Newfoundland, C- CORE 82-10, October 1982.

Zedan, M.F., and C. Dalton, "The Inverse Method Applied to a Body of Revolution with an Extended Favorable Pressure Gradient," Int'l Conference on Inverse Design Concepts, University of Texas, Austin, October 1984.

Khalifa, M., and C. Dalton, "The Instability of a Shear Layer Leading to the Breaking of Water Waves," Proceedings, Turbulent Shear Flow Conference, Cornell University, August 1985.

K. Kheyrandish, and C. Dalton, "A Flow Model for Burnout in Saturated Boiling over a Horizontal Cylinder," National Heat Transfer Conference, Denver, August 1985, ASME HTD, Vol. 47.

C. Dalton, and X. Wang, "The Vortex Rollup Problem with Viscous Decay," Proceedings of the National Fluid Dynamics Congress, Cincinnati, July 1988, Vol. 1, p. 531.

Wang, X., and C. Dalton, "Oscillating Flow Past a Rigid Circular Cylinder: A Finite-Difference Study," ASME Symposium on Unsteady Flows, Toronto, June 1990, FED-Vol. 92, pp. 23-31.

Zhang, J., C. Dalton, and X. Wang, "A Numerical Comparison of Morison

Equation Coefficients for Oscillatory Flows: Sinusoidal and Nonsinusoidal," 1991 OMAE/ ASME Meeting, Stavanger, Vol. 1-A, pp. 29-37.

Sarpkaya, T., and C. Dalton, "Analysis of Wave Plus Current Induced Forces on Cylinders," Offshore Technology Conference, paper no. 6815, Houston, May 1992.

Justiz, C.R., R.M. Sega, and C. Dalton, "A Hybrid Flow Model for Charges and Neutral Particles around Spacecraft in Low Earth Orbit," AIAA-92-2935, 27th Thermophysics Conference, AIAA, Nashville, July 1992.

Dalton, C., X. Sun, J. Zhang, and L. Zhuang, "Computation of Hydrodynamic Damping Coefficients at Low Keulegan-Carpenter Numbers," Offshore Technology Conference, Houston, May 1993.

Sun, X., C. Dalton, and L. Zhuang, "Large Eddy Simulation of Flow Past Circular Cylinders," Second International Conference on Fluid Mechanics, Beijing, July 1993.

Justiz, C., R.M. Sega, C. Dalton, and A. Ignatiev, "Return Flux Contamination of an Outgassing Spacecraft in LEO," presented at the 31st Aerospace Sciences Meeting, AIAA, Reno, NV, January 1993.

Zhang, J., and C. Dalton, "Interaction of a Steady Approach Flow and a Circular Cylinder Undergoing Forced Oscillation," OMAE/ASME Conference, Houston, March 1994.

Sun, X., and C. Dalton, "Large Eddy Simulation of Flow Past a Circular Cylinder at Subcritical Reynolds Number," ONR Workshop, Phoenix, December 1993.

Zhang, J., and C. Dalton, "A Numerical Solution for a Circular Cylinder, Oscillating Freely and Transversely in a Steady Approach Flow," Int'l Symposium on Waves-Numerical Modeling, Vancouver, August 1994.

Zheng, W., and C. Dalton, "A Numerical Study of Viscous Oscillatory Flows Around Fixed Rectangular Cylinders at Low Keulegan-Carpenter Numbers," BOSS Conference, MIT, July 1994.

Sun, X., and C. Dalton, "Application of two SGS Models to Flow Over a Circular Cylinder," Turbulence in Complex Flows, ASME/FED, vol.203, 1994, 21-29.

Zhang, J., and C. Dalton, "Transition to 3D in the wake of a cylinder in a 2D oscillating flow," 6th Asian Conf. on Fluid Mechanics, Singapore, May 1995, 1508-1511.

Sun, X., and C. Dalton, "Application of the LES Method to Oscillating Flow past a Circular Cylinder," OMAE/ASME Conference, Copenhagen, June, 1995.

Zhang, J., and C. Dalton, "The Onset of a 3D Oscillatory Flow in 2D Oscillating Flow past a Circular Cylinder", OMAE/ASME Conference, Copenhagen, June, 1995

Lu, X., C. Dalton, and J. Zhang, "Application of large eddy simulation to an oscillating flow past a circular cylinder," 3rd Intl. Symposium on Turbulence Modeling and Measurements, Crete, Greece, May, 1996.

Lu, X., C. Dalton, and J. Zhang, "Application of large eddy simulation to steady flow past a circular cylinder," 15th Intl. Conference on Offshore Mechanics, OMAE/ASME, Florence, Italy, June, 1996.

Li, G., and C. Dalton, "Computation of Oscillating Flow Past a Circular Cylinder", The First AFOSR FAICDL Conference, Ruston, LA, August, 1997, pp. 149-151

Xu, Y. and C. Dalton, "Computation of Force on a Cylinder in a Shear Flow," 18th Int'l. Conference on Offshore and Arctic Engineering, OMAE/ASME, St. John's, Newfoundland, July, 1999.

Dalton, C., "Keeping US Engineering Students in Graduate School", ASEE Annual Meeting, Charlotte, NC, June, 1999.

Dalton, C., Niedoroda, A.W., and C.W. Reed, Determination of Forces on a Pipeline in the Vicinity of a Seabed", ASME/OMAE Conference, New Orleans, February, 2000.

Reed, C.W., Niedoroda, A.W., Dalton, C., Parker, G., and Gelfenbaum, G., "Predicting Turbidity Current Speeds using Numerical Methods", ASME/OMAE Conference, New Orleans, February, 2000.

Dalton, C., Xu, Y., and Owen, J.C., "Suppression of Lift Associated with Vortex Shedding at Moderate Reynolds Numbers", IUTAM Conference on Bluff Body Flows and Vortex-Induced Vibration, Marseille, June, 2000.

Dalton, C. Computation of Flow Past Cylinders Using LES", Proceedings of the Workshop on Vortex-induced Vibrations on Offshore Structures, Sao Paulo, Brazil, August, 2000.

Dalton, C. and H. Al-Jamal, "VIV via LES", OMAE/ASME 2001 Conference, Rio de Janeiro, June, 2001.

Al-Jamal, H. and C. Dalton, "VIV calculations at moderate Reynolds

number”, OOA/ASME Conference, Oslo, June, 2002.

Dalton, C and W. Zheng, “Numerical solutions of a viscous uniform approach flow past square and diamond shaped cylinders”, Proceedings of the Symposium on Fluid/Structure Interactions, IMECE/ASME, New Orleans, November, 2002.

Al-Jamal, H. and C. Dalton, “Vortex-induced Vibrations using Large Eddy Simulation at moderate Reynolds number”, Conference on Bluff Body Wakes and Vortex-Induced Vibration, Fort Douglas, Australia, December, 2002.

Al Jamal, H. and C. Dalton, “Phase angle behavior in a self-excited oscillation of a circular cylinder in a uniform approach flow”. Third International Conference on Hydroelasticity, Oxford University, September 2003.

Al Jamal, H. and C. Dalton, “Phase angle behavior and spectral analysis in a self-excited oscillation of a circular cylinder in a uniform approach flow”. Conference on Flow-Induced Vibrations, Paris, July, 2004.

Leutwyler, Z. and C. Dalton, “A CFD Study to Analyze the Aerodynamic Torque, Lift, and Drag for a Butterfly Valve in the Mid-Stroke Position”, ASME Heat Transfer and Fluids Engineering Summer Meeting 2004, Paper no. HT-FED2004-56016, Charlotte, NC, July, 2004.

Dalton, C., Rakshit, T., and Atluri, S., “Parallel Computation of VIV Using Strip Theory, Parallel Computing Symposium, University of Houston, April, 2005.

Atluri, S. and Dalton, C., “Frequency modulated wakes in a viscous flow” MIT Conference on Computation in Fluids and Solids, June, 2005.

Rakshit, T., S. Atluri, and C. Dalton, “VIV of a composite riser at moderate Reynolds numbers”, OMAE International Conference, Halkidiki, Greece, June, 2005.

Atluri, S., V. Rao, and C. Dalton, “A numerical investigation of the near wake structure in the variable frequency oscillation of a circular cylinder”, BBVIV4, Santorini, Greece, June, 2005.

Rakshit, T., Atluri, S., Dalton, C., “VIV of a Composite Riser via CFD/LES”, Composite Materials for Offshore Operations–4, Houston, October, 2005.

Leutwyler, Z. and C. Dalton, "A CFD study of the flowfield , resulting force and aerodynamic torque on a symmetric disk butterfly valve in a compressible fluid", ASME FED Meeting, Miami, July, 2006.

Rakshit, T., Atluri, S., Dalton, C., "VIV by CFD of a Composite Riser", Supercomputing 2006, Tampa, November 11-16 (Poster paper).

Josefsson P., C. Dalton, "Vortex-induced vibration of a variable-tension riser", ASME/OMAE2007, San Diego, June, 2007..

Dalton, C., Song, G., Garza, J., Vargas, J., "Suppression of VIV using Shape Memory Alloy Springs", ASCE Earth and Space Conference, Long Beach, CA, March, 2008.

Invited Seminars

Exxon Production Research Company, May 1969; "Drag in Unsteady Flow."

Purdue University (Fluid Mechanics Group), June 1969; "Unsteady Potential Flow Past a Group of Cylinders."

Exxon Production Research Company, June 1970; "Hydrodynamics of Multileg Offshore Platforms."

University of Texas (Mechanical Engineering Department), November 1972; "Numerical Solutions in Fluid Mechanics".

University of West Florida, July 1974; "Energy Recovery from Solid Waste by Means of Pyrolysis."

ASME Winter Annual Meeting, New York, 1974; "Energy Recovery from Solid Waste."

ASME South Texas Section, November 1975; "Nonverbal Communication in Engineering Teams."

University of Puerto Rico, April 1977; "Airship Cargo Transportation System."

University of Puerto Rico, April 1977; "Energy Recovery from Solid Waste."

Texas A&M University, October 1977; "Water Waves and Wave Forces."

Tel Aviv University, Tel Aviv, Israel, December 1979; "The Inverse Problem in Hydrodynamics."

Hebrew University of Jerusalem, Israel, December 1979; "The Hydrodynamic Design of Axisymmetric Bodies."

Southwest Research Institute, San Antonio, "Wave Forces on Offshore Structures," July 1980.

University of Houston, November, 1981; "Wave Forces on Offshore Structures"

Texas A&M University, March 1982; "Useful Applications of Potential Flow Methods."

University of Houston, September 1983; "Low Drag Design of an Axisymmetric Body."

University of Rhode Island, November 1983; "Low Drag Design of an Axisymmetric Body."

Texas A&M University, Galveston, Texas, October 1984; "Current Problems in Offshore Design," given for a Peoples' Republic of China delegation.

University of Texas (Fluid Mechanics Group), March 1985; "Evolution of a Shear Layer into a Breaking Water Wave."

University of Salford, U.K., July 1985; "Breaking Waves at the Interface of Two Slightly Viscous Incompressible Fluids."

University of Houston Energy Laboratory, November 1985; "Current Studies of High-Flux, Slow-Boiling Heat Transfer," with John Lienhard.

Rice University, January 1989, "Unsteady Flow Past a Circular Cylinder".

ASME South Texas Section, November 1989, "Numerical Simulation of Unsteady Flow Past a Circular Cylinder."

Texas A&M University, February 1990, "Oscillating Flow past a Circular Cylinder: A Numerical Study."

University of Paris XI, Paris, France, June 1991, "Computation of Unsteady Flow past a Circular Cylinder."

Texas A&M University, 1992, "Computation of High Reynolds Number Flow Past a Circular Cylinder".

University of Houston Energy Laboratory, September 1993, "Computation of

Wave Forces on an Offshore Platform."

University of Science and Technology of China, Hefei, P.R.C., July 1993, "Computation of unsteady flow past a circular cylinder."

University of Science and Technology of China, Hefei, P.R.C., May 1995, "Computation of 3D wakes in unsteady flow past a cylinder."

Tsinghua University, Beijing, P.R.C., May 1995, "Computation of 3D wakes in unsteady flow past a cylinder."

Faculdade da Cidade, Rio de Janeiro, Brazil, August 1995, "Flow around obstacles and related energy problems".

University of California, Berkeley, CA March, 1997, "Computation of Wave Forces on an Offshore Platform".

Louisiana Tech, Ruston, LA, May 1997, "Calculation of Flow Past a Cylinder".

Shell Oil Co., Houston, TX, April, 1998, "Flow-induced Vibrations".

Rice University, October, 1998, "Computation of Flow past a Cylinder using Large Eddy Simulation".

University of Houston, February, 1999, "Computation of Flow past a Cylinder using Large Eddy Simulation".

Imperial College, London, November, 1999, "Calculation of Flow past a Cylinder".

University of Manchester Institute of Science and Technology, Manchester, UK, November, 1999, "Calculation of Flow past a Cylinder".

Rice University, March 2001, "Calculation of high Reynolds number flows".

University of Virginia, January, 2002 "Some Recent Results in the Calculation of Flow Past a Cylinder".

University of Texas at Arlington, Arlington, TX, September, 2002, "Computation of Vortex-induced Vibration".

Hong Kong Polytechnic University, December, 2002, "Calculation of Vortex-Induced Vibration on a Cylinder".

ExxonMobil Upstream Research, October, 2004, "VIV on Flexible Risers".

Technip, March 2005, "Calculation of VIV"

American Bureau of Shipping, September, 2006, "CFD in the Offshore Industry"

FUNDED RESEARCH

Grants

"The Hydrodynamic Stability of Pipe Flow," National Aeronautics and Space Administration, 1967, \$22,967.

"The Effect of a Reef on an Ocean Wave," Marine Biomedical Institute, University of Texas Medical School, 1972, \$8,700.00

"Coal Slurry Pipeline Analysis," Energy Institute, University of Houston, 1978, \$9,245.

"Wind Engineering Study of an Offshore Platform," Gulf Research and Development Co., 1981, \$58,866.

"Wind Engineering Study of an Offshore Platform," Gulf Research and Development Co., 1982, \$8,000.

Texas Advanced Technology Program, "Nonlinear Frequency-Domain Hydrodynamic Analysis of a Compliant Offshore Platform in Random Seas", 1988, with A.N. Williams and A. Kareem, \$119,939.

HARC, CFD calculations, 1990, Supercomputer-time grant, \$30,000.

ERAP, "Numerical Prediction of Wave Forces on Offshore Structures," 1990-1992, \$140,000.

NASA Ames, CFD calculations, 1991 Supercomputer-time grant, 20 hours CPU time.

Pittsburgh Supercomputing Center, CFD calculations, 1992-8, 700 Cray YMP/C90 Service Units (~ 500 hrs. CPU time).

Energy Laboratory, University of Houston, "Wave Forces on Offshore Structures," 1993-1994, \$10,081.

NSF, \$65,000, Calculations of Flow Past a Cylinder, July 1993-June 1995.

Texas Advanced Technology Program, "Effects of Turbulence and Shear on

Vortex-induced Vibrations," with Davinder Virk, 1996-1998, \$157,425.

San Diego Supercomputing Center, CFD calculations, 1998-1999, 100 Cray T90 hours.

Nippon Electric Corp., The Woodlands, TX, CFD calculations, Approximately 100 CPU hours per year, January, 2000 – September 2003 on the NEC SX4 Supercomputer.

Kalsi Engineering Inc., Houston, \$45,000, A Numerical Study of Compressible Flow through a Butterfly Valve, August, 2002- August, 2004.

RPSEA (Co-PI) total funding was ~\$350,000 with my share at ~\$85,000 Vibrations of a composite offshore riser, July, 2003-August 2004).

San Diego Supercomputing Center, CFD calculations, 2005-8; 30,000 CPU hours on a high performance parallel cluster.

Opti-Solar, California, Co-PI on a contract with Opti-Solar. My share was \$12,865.50.

SERVICE ACTIVITIES

University-College Service

University Athletic Committee (1970-73)

Graduate Faculty Board, College of Engineering (1971-73), Chairman (1972-73)

College Recruiting Committee (1971-75)

Dean's Advisory Committee (1973-74)

Chair, Departmental Graduate Affairs Committee (1973-1980)

Director of Graduate Studies for Mechanical Engineering Department (1974-1978)

Tau Beta Pi Advisor (1965-72; 1983-98).

Task Force Member, Mission Self Study (1974-75), (1984-85)

Associate Director, University Office of Research Development (1976-77) (20 months)

Member, University Council on Graduate and Professional Studies (1977-

79), (1985-90)

Chairman, University Council on Graduate and Professional Studies (1986-88)

Member, University Academic Council (1986-88)

Member, University Research Council (1990 -99).

Member, Athletic Admissions Review Committee (1990 -1995).

Chair, University of Houston and Research Council Committee on Centers and Institutes (1993-1999).

Chair, IE Department Chair Search Committee (1999-2000).

Member, College Promotion and Tenure Committee (2000).

Director of Undergraduate Advising, Mechanical Engineering, (2000-)

Member, University Athletics Committee, (2001-2004).

Chair, ME Department Chair Search Committee (2002-2003).

President, UH Chapter of Phi Kappa Phi (National Honor Society) (2001-2002).

Member of the Undergraduate Curriculum Committee, ME Dept and College committees (2000-present)

Member, ME Graduate Committee (2005-2007)

Professional Service

Member, Scientific Committee, International Symposium on DNS/LES, University of Texas, Arlington (2000-2001).

Education Chairman, ASME/OMAE Houston Chapter, 1993-present

Member, Executive Committee, Engineering Research Council, American Society for Engineering Education, 1995-1999.

Member, Operating Board, Basic Engineering Technical Group, ASME, 1989-1992.

Member, Board of Directors, GEM, 1990 -1998.

Member, U.S. National Committee/Theoretical and Applied Mechanics, 1989-1993.

Vice President, Engineers Council of Houston, 1988-1990.

Congress General Chairman, 1988, National Fluid Dynamics Congress.

Member, Executive Committee, Fluids Engineering Division, ASME, 1983-88, Chairman 1986-87.

Chairman, ASME Fluid Mechanics Committee (1978-80).

Vice Chairman, ASME Fluid Mechanics Committee (1976-78).

Honors Chairman, ASME Fluid Mechanics Committee (1973-75, 1980-82).

Member, ASME Fluid Mechanics Committee (1966-present).

Member, AIAA Subcommittee on Lighter-than-Air Systems (1977-1982)

Member, Extended Executive Committee, Offshore Mechanics Division of ASME.

Editorial Positions

Associate Editor, Journal of Fluids and Structures, 1985-present.

Associate Editor, Journal of Offshore and Arctic Engineering, 2007-

Associate Editor, Journal of Fluids Engineering, 1981-1984.

Editorial Board Society of Petroleum Engineers 1979-80.

Paper reviewer for JFE, JCP, JFM JPT, JOMAE, Physics of Fluids, Comp. Mthds. in Appld. Mech. & Engr., AIAA J., J. of Hydronautics, Intl. J. Num. Mthds. in Fluids, Computers and Fluids.

Proposal reviewer for NSF, ONR, AFOSR, Canadian Research Council, British Research Council.

Consulting Activity

Exxon Production Research Company, 1965-71, 1981; Performed analysis of wave forces on offshore platforms.

Mathematics Research, Inc., 1967-68; Studied entrance length problems.

Chappell Industries, Inc., 1972-77; Performed flow visualization studies of the Watchdog downhole safety valve. Performed pressure drop tests on Watchdog valve.

The Western Company, 1972-74; Did model study and analysis of the pressure-grouting system marketed by the Western Company.

Brown & Root, Inc., 1973-83; Performed analysis of wave forces on offshore

platforms.

Wide-lite Corporation, 1973; Performed wind-load analysis on various outdoor lighting fixtures and ballasts.

Shell Oil Company, 1977-78; Performed analysis of large cylinders undergoing heave motion.

Woodward-Clyde Consultants, 1979-81: Problems dealing with water waves and wave forces.

GDS Engineers, 1988; Performed analysis of hot gas flow in a pipeline.

Stress Engineering Services, 1989; Performed vortex shedding analysis of an aircraft appendage.

Frazer Industries, 1992-5; Performed hydrodynamic design of a paravane for seismic vessels.

Valvtechnology, 1996-7; Did a study of the flow characteristics of in-line relief valves.

Woodward-Clyde Consultants, 1998-9; Studied forces on undersea pipelines due to underwater currents.

Conoco Joint Industry Project, 1998-9; Model testing of shear effects on water/drilling-mud interface.

Brown & Root/Halliburton, 2000, Development of a pig for an underwater pipeline.

Shell Oil Co. 2000-2001, Development of a model for expansion and compression waves in the fluid in a drill string.

ExxonMobil, 2004-2005, Consultant on CFD activity of ExxonMobil.

Godwin-Gruber law firm, 2004, Dallas, expert witness on a patent infringement case.