

Curriculum Vitae

I. PERSONAL INFORMATION

Name: Daniel Perry Lathrop
Title: Professor & Associate Dean

Address: Institute for Research in Electronics and Applied Physics (IREAP)
Energy Research Facility, Building 223
University of Maryland, College Park, MD 20742

(301) 405-1594
lathrop@umd.edu

Website: <http://complex.umd.edu>

(Home) 13312 Locksley Lane
Silver Spring, MD 20904

Born: Walnut Creek, California, 1966

Education: 1987 B.A. Physics, University of California at Berkeley
1991 Ph.D. Physics, University of Texas at Austin, Dissertation advisor: H. L. Swinney

Employment: 1987-1989 Teaching Assistant, Dept. of Physics, University of Texas
1988-1991 Research Assistant, Center for Nonlinear Dynamics, Dept. of Physics, University of Texas
1992 Lecturer, Depts. of Physics, Engineering, and Applied Science, Yale University, Spring
1993-1994 Technical Consultant, Tidal Electric Inc., Branford, CT
1992-1994 Research Affiliate, Dept. of Physics, Yale University
1992-1994 Postdoctoral Research Associate, Dept. of Mech. Eng., Yale University. Postdoctoral advisor: K.R. Sreenivasan
1994 Associate Research Scientist, Dept. of Mechanical Engineering, Yale University
1994-1997 Assistant Professor, Dept. of Physics, Emory University
1997-2004 Affiliate Professor, Institute of Physical Sciences and Technology
1997-present Member, Institute for Research in Electronics and Applied Physics, University of Maryland
1997-2000 Assistant Professor, Dept. of Physics, University of Maryland

2000-2006	Associate Professor, Dept. of Physics, University of Maryland
2005-2006	Associate Professor, Institute for Physical Sciences and Technology, University of Maryland
2005-2007	Affiliate Professor, Dept. of Geology, University of Maryland
2005-2006	Acting Director, Institute for Research in Electronics and Applied Physics, University of Maryland
2006-present	Professor (tenure home), Dept. of Physics, University of Maryland
2006-present	Professor, Institute for Physical Sciences and Technology, University of Maryland
2006-2012	Director, Institute for Research in Electronics and Applied Physics, University of Maryland
2007-present	Professor, Dept. of Geology, University of Maryland
2012-present	Associate Dean for Research, College of Computer, Mathematical and Natural Sciences, University of Maryland

II. RESEARCH, SCHOLARLY & CREATIVE ACTIVITIES

a. Books

1. S. Fauve and D.P. Lathrop, "Laboratory Experiments on Liquid Metal Dynamos and Liquid Metal MHD Turbulence," Chapter 16 in *Astrophysical and geophysical fluid dynamics, and dynamos*, ed. by A.M. Soward, C.A. Jones, D.W. Hughes and N.O. Weiss (pub. Taylor and Francis 2004).

b. Articles in Refereed Journals:

(* denotes Lathrop is significant contributor; + indicates Lathrop is research project leader):

1. D.P. Lathrop* and E.J. Kostelich, "Characterization of an Experimental Strange Attractor by Periodic Orbits," *Phys. Rev. A*, **40**, 4028-4031 (1989).
2. D.P. Lathrop*, J. Fineberg, and H.L. Swinney, "Turbulence between Concentric Rotating Cylinders at Large Reynolds Numbers," *Phys. Rev. Lett.*, **68**, 1515-1518 (1992).
3. D.P. Lathrop*, J. Fineberg, and H.L. Swinney, "Transition to Shear Driven Turbulence in Couette-Taylor Flow," *Phys. Rev. A*, **46**, 6390-6405 (1992).
4. A. Juneja, D.P. Lathrop*, K.R. Sreenivasan, and G. Stolovitzky, "Synthetic Turbulence," *Phys. Rev. E*, **49**, 5179-5194 (1994).
5. C.L. Goodridge, W. Tao Shi, and D.P. Lathrop*+, "Threshold Dynamics of Singular Gravity-Capillary Waves," *Phys. Rev. Lett.*, **76**, 1824-1827 (1996).
6. C.L. Goodridge, H.G.E. Hentschel, and D.P. Lathrop*+, "Viscous Effects in Droplet Ejecting Capillary Waves," *Phys. Rev. E*, **56**, 472-475 (1997).
7. W. Tao Shi, C.L. Goodridge, and D.P. Lathrop*+, "Breaking Waves: Bifurcations Leading to a Singular Wave State," *Phys. Rev. E*, **56**, 4157-4161 (1997).

8. .E. Hogrefe, N.L. Peffley, C.L. Goodridge, W.T. Shi, H.G.E. Hentschel, and D.P. Lathrop*+, ``Power-Law Singularities in Gravity-capillary Waves," *Physica D*, **123**, 183-205(23) (1998). (INVITED)
9. C.L. Goodridge, H.G.E. Hentschel, and D.P. Lathrop*+, ``Breaking Faraday Waves: Critical Slowing of Droplet Ejection Rates," *Phys. Rev. Lett.*, **82**, 3062-3065 (1999).
10. B.W. Zeff, J. Fineberg and D.P. Lathrop*+, ``Formation of a Self-Focusing Singularity on a Fluid Surface," *Phys. Fluids A: Gallery of Fluid Motion*, **11**, S8, (1999).
11. A.B. Hassam, J.F. Drake, D. Goel and D.P. Lathrop*+, ``Liquid Metal Flow Encasing a Magnetic Cavity," *Phys. of Plasmas Lett.*, **7**, 1081-1084 (2000).
12. B.W. Zeff, B. Kleber, J. Fineberg, and D.P. Lathrop*+, ``The Dynamics of Finite-Time Singularities: Curvature Collapse and Jet Eruption on a Fluid Surface," *Nature*, **403**, 401-404, (Jan. 27, 2000). *Accompanying review* ``News and Views: Jets from a singular surface," by M.P. Brenner, *Nature*, **403** 377-378, (Jan. 27, 2000).
13. N. Peffley, A.B. Cawthorne, A.G. Goumilevski, and D.P. Lathrop*+, ``Characterization of Experimental Dynamos," *Geophys. J. Int.*, **142**, 52-58, (2000).
14. N.L. Peffley, A.B. Cawthorne, and D.P. Lathrop*+, ``Toward a Self-generating Magnetic Dynamo: the Role of Turbulence," *Phys. Rev. E*, **61**, 5287-5294 (2000).
15. E.J. Boettcher, J. Fineberg, D.P. Lathrop*+, ``Turbulence and wave breaking effects on air-water gas exchange," *Phys. Rev. Lett.*, **85**, 2030-2033 (2000).
16. D. Sweet, E. Ott, T.M. Antonsen, D.P. Lathrop* and J.M. Finn, ``Blowout Bifurcations and the Onset of Magnetic Dynamo Action," *Phys. of Plasmas*, **8**, 1944-1952 (2001).
17. D. Sweet, B. Zeff, E. Ott and D.P. Lathrop*+, ``Three Dimensional Optical Billiard Chaotic Scattering," *Physica D*, **154**, 207-218(12) (2001).
18. D. Sweet, E. Ott, J.M. Finn, T.M. Antonsen, Jr. and D.P. Lathrop*+, ``Blowout Bifurcations and the Onset of Magnetic Activity in Turbulent Dynamos," *Phys. Rev. E*, **63**, 066211 (2001) [4 pages].
19. D.P. Lathrop*+, W.L. Shew, and D.R. Sisan, ``Laboratory Experiments on the Transition to MHD Dynamos," in *Plasma Phys. and Cont. Fusion*, **43**, 151-160(10) (2001).
20. B.W. Zeff, D.D. Lanterman, R. McAllister, R. Roy, E.J. Kostelich, and D.P. Lathrop*+, ``Measuring intense rotation and dissipation in turbulent flows," *Nature*, **421**, Jan. 9 2003, 146-149 (2003).
21. D.R. Sisan, W.L. Shew and D.P. Lathrop*+, ``Lorentz Force Effects on Liquid Metal Turbulence," *Physics of Earth and Planetary Interiors*, **135**, 137-159(23) (2003).
22. T.H. van den Berg, C.R. Doering, D. Lohse, and D.P. Lathrop*+, ``Smooth and rough boundaries in turbulent Taylor-Couette flow," *Phys. Rev. E*, **68**, 036307 (2003) (5 pages).
23. J. Stambaugh, D.P. Lathrop*, E. Ott, and W. Losert, ``Pattern formation in a monolayer of magnetic spheres," *Phys. Rev. E*, **68**, 026207 (2003) (5 pages).
24. E.A. Rogers, R. Kalra, R.D. Schroll, A. Uchida, D.P. Lathrop, R. Roy, ``Generalized synchronization of spatiotemporal chaos in a liquid crystal spatial light modulator," *Phys. Rev. Lett.*, **93**, 084101 (2004).

25. D.R. Sisan, N. Mujica, W.A. Tillotson, Y.-M. Huang, W. Dorland, A.B. Hassam, T.M. Antonsen, and D.P. Lathrop*, "Experimental Observation and Characterization of the Magnetorotational Instability," *Phys. Rev. Lett.*, **93**, 114502 (2004).
26. Thomas H. van den Berg, Stefan Luther, Daniel P. Lathrop*, and Detlef Lohse, "Drag Reduction in Bubbly Taylor-Couette Turbulence," *Phys. Rev. Lett.*, **94**, 044501 (2005).
27. A. Kumar, S. Banerjee, and D.P. Lathrop, "Dynamics of a piecewise smooth map with singularity," *Physics Letters A*, **37** 87-92 (2005).
28. W.L. Shew and D.P. Lathrop*, "Liquid sodium model of geophysical core convection," *Phys. Earth and Planetary Interiors*, **153**, 136-149 (2005).
29. N. Mujica and D.P. Lathrop, "Bistability and hysteresis in a highly turbulent swirling flow," *Physica A*, **356**, 162-166 (2005).
30. N. Mujica and D.P. Lathrop*, "Hysteretic gravity-wave bifurcation in a highly turbulent swirling flow," *J. Fluid Mech.*, **551**, 49-62 (2006).
31. G.P. Bewley, D.P. Lathrop, and K.R. Sreenivasan, "Superfluid helium - Visualization of quantized vortices," *Nature*, **441**, 588 (2006).
32. D.P. Lathrop, "Fluid dynamics - Turbulence lost in transience," *Nature*, **443**, 7107 (2006).
33. T.H. van den Berg, D.P.M. van Gils, D.P. Lathrop, and D. Lohse, "Bubbly turbulent drag reduction is a boundary layer effect," *Phys. Rev. Lett.*, **98**, 084501 (2007).
34. G.P. Bewley, D.P. Lathrop, and K.R. Sreenivasan, "Inertial waves in rotating grid turbulence," *Phys. Fluids*, **19**, 071701 (2007).
35. D.H. Kelley, S.A. Triana, D.S. Zimmerman, A. Tilgner, and D.P. Lathrop, "Inertial waves driven by differential rotation in a planetary geometry," *Geophys. & Astrophys. Fluid Dyn.*, **101**, 469-487 (2007).
36. G.P. Bewley, K.R. Sreenivasan, and D.P. Lathrop, "Particles for tracing liquid helium," *Experiments in Fluids*, **44**, 887-896 (2008).
37. G.P. Bewley, M.S. Paoletti, K.R. Sreenivasan, and D.P. Lathrop, "Characterization of reconnecting vortices in superfluid helium," *Proc. Nat. Acad. Sci.*, **105**, 13707-13710 (2008).
38. S.A. Triana, D.H. Kelley, D. Zimmerman, D. Sisan, and D.P. Lathrop, "Hopf bifurcations with fluctuating gain," *Astro. Nach.*, **329**, 701-705 (2008).
39. M.S. Paoletti, M.E. Fisher, K.R. Sreenivasan, and D.P. Lathrop, "Velocity Statistics Distinguish Quantum Turbulence from Classical Turbulence," *Phys. Rev. Lett.*, **101**, 154501 (2008).
40. M.S. Paoletti, R.B. Fiorito, K.R. Sreenivasan, and D.P. Lathrop, "Visualization of superfluid helium flow," *J. Phys. Soc. of Japan*, **77**, 111007 (2008).
41. R. Zhang, H.L.D.D. Cavalcante, Z. Gao, D.J. Gauthier, J.E.S. Socolar, M.M. Adams, and D.P. Lathrop, "Boolean Chaos," *Phys. Rev. Lett.*, **80**, 045202 (2009).
42. S.Y. Chen, G.L. Eyink, D.P. Lathrop and C. Meneveau, "At the boundaries of nonlinear physics, fluid mechanics and turbulence: where do we stand?" *Physica D*, **239**, 1211-1213 (2010).

43. M.S. Paoletti, M.E. Fisher, K.R. Sreenivasan, and D.P. Lathrop, "Reconnection dynamics for quantized vortices," *Physica D*, **239**, 1367-1377 (2010).
44. D.H. Kelley, S.A. Triana, D.S. Zimmerman, and D.P. Lathrop, "Selection of inertial modes in spherical Couette flow," *Phys. Rev. E*, **81**, 026311 (2010).
45. M.S. Paoletti and D.P. Lathrop, "Angular momentum transport in turbulent flow between independently rotating cylinders," *Phys. Rev. Lett.*, **106**, 024501 (2011).
46. M.S. Paoletti and D.P. Lathrop, "Quantum Turbulence," *Ann. Rev. Cond. Matt. Phys.*, **2**, 213-234 (2011).
47. D.P.M. van Gils, G.W. Bruggert, D.P. Lathrop, C. Sun, D. Lohse, "The Twente turbulent Taylor-Couette ((TC)-C-3) facility: Strongly turbulent (multiphase) flow between two independently rotating cylinders" *Rev. Sci. Inst.*, **76**, 025105 (2011).
48. D.S. Zimmerman, S.A. Triana and D.P. Lathrop, "Bi-stability in turbulent, rotating spherical Couette flow," *Phys. Fluids*, **23**, 065104 (2011).
49. H. Matsui, M. Adams, D. Kelley, S.A. Triana, D.S. Zimmerman, B.A. Buffett and D.P. Lathrop, "Numerical and experimental investigation of shear-driven inertial oscillations in an Earth-like geometry," *Phys. Earth Planet. In.*, **188**, 194-202 (2011).
50. S.A. Triana, D.S. Zimmerman and D.P. Lathrop, "Precessional states in a laboratory model of the Earth's core," *J. Geophys. Res.-Sol. Ea.*, **117**, B04103 (2012).
51. D.P. Meichle, C. Rorai, M.E. Fisher and D.P. Lathrop, "Quantized vortex reconnection: Fixed points and initial conditions," *Phys. Rev. B*, **86**, 014509 (2012).
52. M. Rieutord, S.A. Triana, D.S. Zimmerman and D.P. Lathrop, "Excitation of inertial modes in an experimental spherical Couette flow," *Phys. Rev. E*, **86**, 026304 (2012).

c. Talks, Abstracts, and Other Professional Papers Presented

Invited Talks at Conferences and Workshops:

1. U.C.S.D. workshop on Dynamical Systems, March 1990.
2. Santa Fe workshop on Nonlinear Prediction and Modeling, September 1990.
3. Arizona State University workshop on Dynamics of Structures and Intermittencies in Turbulence, May 1991.
4. American Physical Society, March 1992.
5. NATO Advanced Research Workshop on Spatio-Temporal Properties of Centrifugal Instabilities, Nice, France, April 1993.
6. Materials Research Society, November 1993.
7. 9th International Couette-Taylor Workshop, Boulder CO, August 1995.
8. Engineering Science Conference, October 1996.
9. 17th Annual International Conference, Nonlinear Waves and Solitons in Physical Systems, Los Alamos, May 1997.
10. 4th Experimental Chaos Conference, Boca Raton, FL, August 1997.

11. IUTAM Symposium on Air-Sea Interactions, Nice, France, May 1998.
12. International Workshop on Laboratory Dynamos, Riga, Latvia, June 1998.
13. International Experimental Dynamo Conference, Karlsruhe, Germany, March 2000.
14. SIAM Materials Research Conference, Philadelphia, Penn., May 2000.
15. Nonlinear Dynamics and Patterns, Austin, Texas, June 2000.
16. IUTAM Symposium on Free Surface Flows, Birmingham, England, July 2000.
17. NATO conference: Dynamo and Dynamics, a Mathematical Challenge, Corsica, August 2000.
18. American Geophysical Union, San Francisco, December 2000.
19. Dynamics Days 2001, Chapel Hill, N.C., January 2001.
20. SIAM Applications to Dynamical Systems, Snowbird, Utah, May 2001.
21. European Physical Society, EPS 28, Madeira, Portugal, June 2001.
22. University of Chicago, July 2001.
23. Studies of the Earth's Deep Interior, Lake Tahoe, July 2002.
24. Astrophysical Fluid Mechanics, Durham, England, July 2002.
25. Planetary Dynamos spring school in Les Houches, France April 2003.
26. Nonideal turbulence, Bad Honnef, Germany, April 2003.
27. Core turbulence and numerical models, UCLA, July 2003.
28. Gordon conference on nonlinear science, Tilton, N.H., August 2003.
29. Washington Geological Society, November 2003.
30. Fluid dynamics workshop, Banff, Alberta, December 2003.
31. International conference on nonlinear phenomena, Bangalore, India, Jan 2004.
32. Workshop on MHD Couette Flow, Catania, Italy, February 2004.
33. Understanding Complex Systems Conference, Urbana, July 2004.
34. International Conference on Theoretical and Applied Mechanics, Warsaw, Poland, August 2004.
35. American Geophysical Union, San Francisco, December 2004.
36. Perm Dynamo Days, Perm, Russia, February 2005.
37. Workshop on the Interrelationship between Plasma Exp. in Lab. and Space, Tromso, Norway, July 2005.
38. International Assoc. of Geomag. and Aeronomy, Toulouse, France, July 2005.
39. Kirchatov Institute, Moscow, Russia, January 2006.
40. American Physics Society, Dallas, Texas, April 2006.
41. Japanese Geophysical Society, Tokyo, Japan, May 2006.

42. American Geophysical Union, Baltimore, Maryland, May 2006.
43. National Center for Atmospheric Research (MHD conference), June 2006.
44. Studies of the Earth's Deep Interior, Prague, July 2006.
45. Quantum Fluids and Solids, Kyoto, Japan, July 2006.
46. Kurchatov Institute, Moscow, Russia, October 2006.
47. Quantum turbulence, University of Florida, November 2006.
48. Bullard Lecture, American Geophysical Union, San Francisco, December 2006.
49. American Physical Society, Denver, Colorado, March 2007.
50. Gordon Conference on Nonlinear Science, Waterville, Maine, June 2007.
51. National Science Foundation, High Performance Computing, July 2007.
52. Turbulent Mixing and Beyond, Trieste, Italy, August 2007.
53. MHD in Laboratory and Astrophysics, Catania, Italy, September 2007.
54. Ultraclean systems, Gifu, Japan, November 2007.
55. APS DPP, Orlando, Florida, November 2007.
56. Hands on Science, Ghandinagar, India, January 2008.
57. Magnetic Fields in the Universe, KITP, U.C. Santa Barbara, July 2008.
58. Low Temperature 25, Amsterdam, Netherlands, August 2008.
59. Turbulence and Statistical Mech., Les Houches, France, March 2009.
60. Gordon Conference on Nonlinear Science, June 2009.
61. Chaos/Xaos, Woods Hole, MA, July 2009.
62. Natural Dynamos, Stara Lesna, Slovakia Sept. 2009.
63. Taylor Couette Conference, Princeton, NJ Sept. 2009.
64. International Symposium on Turbulence, Beijing, China, Sept. 2009.
65. American Geophysical Union, San Francisco, CA Dec. 2009.
66. Vortices, Superfluid Dynamics, and Quantum Turbulence, Lammi, Finland, April 2010.
67. Self-Organization in Turbulent Plasmas and Fluids, Dresden, Germany, May 2010.
68. Studies of the Earth's Deep Interior, Santa Barbara, CA July 2010.
69. Spontaneous Energy Focusing Phenomena and Multiscale Physics, Singapore, August 2010.
70. Turbulence and Mixing, Eilat, Israel, October 2010.
71. Quantum turbulence, Abu Dhabi May 2011.
72. Taylor Couette Conference, Leeds UK, July 2011.
73. Natural and laboratory dynamics, Corsica, September 2011.

74. Turbulence convection and shear flows, Bad Durkheim Germany, September 2011.
75. APS DPP, Salt Lake City, November 2011.
76. Quantum turbulence, Abu Dhabi, May 2012.
77. IUTAM symposium, Dublin, Ireland, July 2012.
78. ICMS Workshop on Tangled Magnetic Fields, Edinburgh, Scotland, October 2012.

Colloquia

1. University of Pennsylvania, April 1998.
2. Haverford College, April 1998.
3. Georgetown University, Washington, D.C., October 1998.
4. National Center for Atmospheric Research, Boulder, CO, January 1999.
5. Catholic University, Washington D.C., February 1999.
6. University of Texas, Austin, TX, September 1999.
7. Washington University, Washington, D.C. November 2000.
8. Cornell University, Ithaca, N.Y., November 2000.
9. University of California, Santa Cruz, April 2001.
10. Harvard University, April 2002.
11. Carnegie Institution of Washington, April 2002.
12. California Institute of Technology, March 2003.
13. Columbia University, January 2004.
14. University of Toronto, February 2004.
15. University of Maryland, February 2004.
16. George Mason University, September 2004.
17. University of California, Berkeley, March 2005.
18. George Mason University, April 2005.
19. University of Massachusetts, Amherst, November 2006.
20. Duke University, November 2006.
21. University of Illinois (UIUC), December 2007.
22. University of Chicago, February 2008.
23. NASA Goddard Engineering Colloquium, Sept. 2008.
24. NIST Colloquium, Sept. 2008.
25. University of California, Berkeley, Dec. 2008.
26. University of Oregon, Eugene, Jan. 2009.
27. Georgia Institute of Technology, Feb. 2009.

28. University of Maryland, College Park, March 2010.
29. University of Michigan, Ann Arbor, September 2010.
30. University of California, Los Angeles, October 2010.
31. Wesleyan Univ., April 2011.
32. Washington Univ., St. Louis, November 2011.
33. Penn. State. Univ., January 2012.
34. City College of New York, February 2012.
35. Miami Univ. of Ohio, Benson Lecture, March 2012.

Invited Seminars:

1. Centre de Mécanique, Grenoble, July 1988.
2. University of Chicago, October 1991.
3. Bell Laboratories, January 1992.
4. Princeton University, April 1992.
5. University of Chicago, November 1992.
6. École Normale Lyon, March 1993.
7. National Institute of Standards and Technology, September 1994.
8. Georgia Institute of Technology, March 1995.
9. University of Chicago, July 1995.
10. Duke University, September 1995.
11. Los Alamos National Laboratory, February 1996.
12. Arizona State University, October 1996.
13. University of Texas, December 1996.
14. Yale University, November 1997.
15. Massachusetts Institute of Technology, February 1998.
16. George Mason University, Fairfax, VA, September 1998.
17. NASA Goddard Space Flight Center, Greenbelt, MD, November 1998.
18. Princeton Plasma Physics Laboratory, June 1999.
19. University of Chicago, June 2000.
20. LASSP Solid State Seminar, Cornell University, November 2000.
21. École Normale Supérieure, Lyon, February 2001.
22. Northwestern University, February 2002.
23. CSCAMM, University of Maryland, February 2003.
24. Drexel University, March 2003.

25. Johns Hopkins University, September 2003.
26. Potomac Geophysical Society, September 2004.
27. Dynamics Days, Long Beach, January 2005.
28. Incompressible flow, CSCAMM, University of Maryland, October 2006.
29. Los Alamos National Laboratory, Los Alamos, New Mexico, May 2007.
30. Princeton Plasma Physics Laboratory, Princeton, New Jersey, June 2007.
31. Osaka University, Japan, November 2007.
32. McGroddy Lecture, St. Joseph's University, Philadelphia, Pennsylvania, September 2007.
33. University of Twente, Enschede, the Netherlands, Aug. 2008.
34. University of Texas, Austin, November 2008.
35. Weitzman Institute, Israel, October 2010.
36. KITP, University of California, Santa Barbara, February 2011.
37. National Center for Atmospheric Research, Boulder, March 2012.
38. Carlton College, April 2012.

Publications in Unrefereed Conference Proceedings and Preprints

(* denotes Lathrop is significant contributor; + indicates Lathrop is research project leader):

1. D.P. Lathrop* and E.J. Kostelich, "Analyzing Periodic Saddles in Experimental Strange Attractors," in *Quantitative Measures of Complex Dynamical Systems*, ed. N.D. Abraham and A. Albano (New York: Plenum, Inc.), NATO Advanced Science Institute Series, 1989.
2. D.P. Lathrop* and E.J. Kostelich, "Periodic Saddles," in *Nonlinear Modeling and Forecasting, SFI Studies in the Sciences of Complexity*, Proc. Vol. XIII, eds. M. Casdagli and S. Eubank, (New York: Addison-Wesley), 1991.
3. E.J. Kostelich and D.P. Lathrop*, "The Prediction of Chaotic Time Series, a Variation on the Method of Analogues," in *Predicting the Future and Understanding the Past, SFI Studies in the Sciences of Complexity*, Proc. Vol. XVII, eds. A.S. Weigend and N.A. Gershenfeld, (New York: Addison-Wesley), 1992.
4. J. Fineberg, D.P. Lathrop*, and H.L. Swinney, "Asymptotic Scaling in Turbulent Couette-Taylor Flow," in *Turbulence in Spatially Extended Systems*, (New York: Nova Science), 1993.
5. W.L. Shew, D.R. Sisan, and D.P. Lathrop*+, "Hunting for dynamos: eight different liquid sodium flows," P. Chossat et al. (eds.), *Dynamo and Dynamics, a Mathematical Challenge*, 83-92. Kluwer Academic Publishers, 2001.
6. D.R. Sisan, W.L. Shew, and D.P. Lathrop*+, "Liquid Sodium Experiments: The Effect of Turbulence and Lorentz Forces," in *Conference Proceedings of 6th Experimental Chaos Conference*, M. L. Spano (ed.), AIP Press, 2002.

7. D.P. Lathrop*, ``Turbulent intermittency and Euler similarity solutions,"
<http://www.arxiv.org/abs/cond-mat/0311487>.
8. D.S. Zimmerman, S.A. Triana, D.R. Sisan, W.A. Tillotson, W. Dorland, and D.P. Lathrop*, ``Characterization of the Magnetorotational Instability from a Turbulent Background State," in "MHD Couette Flows: Experiments and Models," eds. R. Rosner, Gunther Rudiger, and A. Bonanno (AIP Press, 2004).
9. D.P. Lathrop, "Making a supersonic jet in your kitchen," *Physics* **3**, 4 (2010).
10. D.P. Lathrop and C.B. Forest, "Magnetic dynamos in the lab," *Physics Today*, **64**, 40-45 (2011).

d. Films, CDs, Photographs, Webpages, etc.

Films

"Magnetic Storm,"

Appearing on PBS/BBC4 starting 2003, segments include filming in UMCP labs, and interview with D.P. Lathrop.

"Journey to the Center of the Earth,"

Appearing on Discovery Channel starting 2003, segments include filming in UMCP labs, and interview with D.P. Lathrop.

National Geographic Channel documentary,

"Naked Science: the Earth's Core," starting 2005.

National Geographic Channel documentary,

"Naked Science: the Earth's Origin," filmed June 2005, start Fall 2005.

National Geographic Channel documentary,

"Naked Science: the Earth's Magnetic field," filmed May 2008

Discovery Channel documentary, filmed July 2009

History Channel, "Journey to the Earth's Core," filmed March 2011

Discovery Channel Canada, documentary, filmed July 2012

Interviews:

BBC Radio interview, broadcast June 2007.

NPR radio interview and on-line video, broadcast June 2008.

Black and White (Interviews, Essays, and Reports), on-line July 2008.

e. Original Designs, Plans, Inventions, Software and/or Patents:

P. Ullman and D.P. Lathrop, ``Tidal Generator," U.S. Patent No. 5,426,332, June 20, 1995.

P. Ullman and D.P. Lathrop, ``Tidal Power Generator, CIP," U.S. Patent No. 5,872,406, Feb. 24, 1995.

D.P. Lathrop, ``Engassing Device," Emory University Invention Disclosure 95022, Feb. 28, 1995.

D.P. Lathrop and A.B. Hassam, ``Sonofusion," University of Maryland Invention Disclosure PS-98-004, Jan. 9, 1998.

A.B. Hassam and D.P. Lathrop, ``Magnetically Secured Flowing Liquid Metal Walls for High Heat Flux Processing," University of Maryland Invention Disclosure PS-99-037, June 30, 1999.

B.W. Zeff, R.G. McAllister, D.P. Lathrop, ``Long-Range, High-Speed Micro Particle Image Velocimetry," University of Maryland Invention Disclosure PS-2001-056, December 4, 2001.

D.P. Lathrop, D.H. Kelley, and D.H. Martin, ``Liquid metal fire suppression using liquid nitrogen," University of Maryland Invention Disclosure PS-2008-074, June 30, 2008.

f. Contracts and Grants

``Singular Gravity-Capillary Waves: Research Leading to New Technology," \$4,000, Emory University Research Committee, April 1, 1996 to Aug. 15, 1996. (P.I.)

``New Approaches to Tidal Power Production," \$7,593, Tidal Electric, Inc., Jan. 1, 1996 to Dec. 31, 1996. (P.I.)

``Collaborative Research to Detect Transitions in Turbulent Waves States," \$4,000, Emerson Center for Scientific Computation, with visiting scholar for 1995-1996 from Arizona State University, Prof. E.J. Kostelich. (co-P.I.)

``Surface Wave Engassing Measurements," \$6,000, GIFT summer program, through Hughes Foundation, May 15, 1995 to July 31, 1995. (P.I.)

``Turbulent Gravity-Capillary Waves and Gaseous Diffusion," \$4,000, Emory University Research Committee, April 1, 1995 to Aug. 15, 1995. (P.I.)

``New Approaches to Tidal Power Production," \$6,825, Tidal Electric, Inc., Sept. 1, 1994 to Aug. 30, 1995. (P.I.)

``Gravitational Effects in Aqueous Foams," \$15,000, Emory University Research Committee, Sept. 1, 1995 to Aug. 31, 1996. (P.I.)

``Conference: Singularities in Nonlinear Physics, Mathematics, and Engineering," \$12,000, Center for Nonlinear Studies, Los Alamos National Laboratory, Jan. 1, 1998 to Mar. 30, 1998 (administered by Los Alamos). (P.I.)

``Conference: Singularities in Nonlinear Physics, Mathematics, and Engineering," \$5,000, Office of Naval Research, Dec. 1, 1997 to Sept. 30, 1998. (P.I.)

``Development of an Experimental Dynamo: Self-generating Magnetic Fields from a Liquid Metal," \$83,279, National Science Foundation, Jan. 1997 to Dec. 1998. (P.I.)

``Development of an Experimental Dynamo: Self-generating Magnetic Fields from a Liquid Metal," \$50,000, Cottrell Scholars Fellowship, Research Corporation, Oct. 1997. (P.I.)

``Characterization of Local Singularities: Self-focusing Wave Motion," \$500,000, NSF - Presidential Early Career Award, Sept. 1997 to May 2002. (P.I.)

``A Liquid Sodium Laboratory Model of the Earth's Outer Core," \$417,434, National Science Foundation, Aug. 1999 to July 2002. (P.I.)

``Development of a Three-Meter Liquid Sodium Geodynamo Model," \$1,100,640, National Science Foundation, Sept. 2001 to Aug. 2005. (P.I.)

``Liquid Sodium Geodynamo Models," \$361,531, National Science Foundation, June 2002 to June 2005. (P.I.)

``Intense Energy, Vorticity, and Strain Focusing in Nonlinear Fluid Flows," \$370,000, National Science Foundation, June 2003 to May 2006. (P.I.)

``French-American collaboration on MHD turbulence in liquid sodium," \$15,000, National Science Foundation, March 2002 to August 2003. (P.I.)

``Supplement to Development of a Three-Meter Liquid Sodium Geodynamo Model," \$220,000, National Science Foundation, Sept. 2001 to Aug. 2007. (P.I.)

``Liquid Sodium Models of Earth's Outer Core," \$467,000, National Science Foundation, July 2005 to June 2008. (P.I.)

``REU - Training and Research Experiences in Nonlinear Dynamics," \$264,750, National Science Foundation, March 2006 to February 2009. (co-P.I.)

``Rotating Nonlinear Flows in Normal and Quantum Fluids," \$482,454, National Science Foundation, May 2006 to April 2009. (P.I.)

``Collaborative Research: CSEDI--Integrating Numerical and Experimental Geodynamo Models," \$346,000, National Science Foundation, April 2007 to March 2010. (P.I.)

``MURI: Exploiting Nonlinear Dynamics for Novel Sensor Designs," \$1,713,393, Office of Naval Research, May 2007 to April 2010. (co-P.I.)

``Liquid Sodium Geodynamo Models," \$417,725, National Science Foundation, June 2008 to June 2011. (P.I.)

``Vortex Dynamics in Quantum and Classical Fluids," \$560,000, National Science Foundation, May 2009 to June 2013. (P.I.)

``NIST Measurement Science and Engineering Fellowship Program," \$15,000,000, National Institute for Standards and Technology, January 2010 to December 2012. (P.I.)

``NIST Center for Nanoscale Science and Technology Cooperative Agreement," \$15,000,000, National Institute for Standards and Technology, January 2010 to December 2015. (P.I.)

g. Fellowships, Prizes and Awards:

Presidential Early Career Award, 1997.

Cottrell Scholars Fellowship, Research Corporation, 1997.

Richard A. Ferrell Distinguished Faculty Fellowship, 2004.

American Physical Society Fellowship, 2005.

Bullard Lecturer, American Geophysical Union, Dec. 2006.

American Association for the Advancement of Science Fellowship, 2011.

Stanley Corssin Award, American Physical Society, 2012.

III. TEACHING, MENTORING, AND ADVISING

a. Teaching Awards:

Recognized by Phi Beta Kappa at Emory for excellence in teaching, Spring 1995 and Spring 1997.

Selected as Marquee Lecturer at UMCP for "PHYS 105: Physics for Decision Makers: the Global Energy Crisis."

Selected as I-series Lecturer in first year of that program at UMCP for PHYS 105.

b. Research Direction:

Undergraduate:

Julie Arrighi, Barbara Brawn, Daniel Blum, Robby Blum, Allison Bradford, Mary Catalano, Andrew Chen (honors mentor 2004), Christy Chew, Agnes de Montaigne, Mariya Dryga, Amanda Founier, Kristy Gaff, Khurram Gillani, Tyler Holland-Ashford, Sereres Johnston, Dana Kirkwood-Watts, Ben Kleber, Zach Lasner, Sean Lawton, Nicholas LeCompte, Bradley Levin, Matthew Lohr, Jon Maher, Patrick McDonough, David Meichle, Auralee Morin, Sandra Penny, Andrew Rhines, Robert Rohde, Charles Rouse, Julia Salevan, Marc Selbey, Eric Spieglan, Matthias Steffen, Abiy Tekla, Benjamin Trahan, Kaitlyn Tuley, Morgan Varner, Brian Vlastakis, Dagon Yuan, Benjamin Zeff

Masters:

J. Errett Hogrefe: Masters Student, graduated 1997 at Emory

Evelyn Boettcher: Masters Student, graduated 2000 at UMCP

Suchismita Roy-Choudhury: Masters Student at UMCP

Mazen M. Kharbutli: Masters Student at UMCP

Thomas van den Berg: Intern from University of Twente, Netherlands, 2002

Dennis van Gils: Intern from University of Twente, Netherlands, 2005

Martijn Teerhuis: Intern from University of Twente, Netherlands, 2005

Daniel Lanterman: Masters Student at UMCP, graduated 2006

Doctoral:

Christopher Goodridge: Ph.D. Student at Emory, graduated 1998, currently in industry

Nick Peffley: Ph.D. Student at UMCP, graduated 2000, currently in industry

Benjamin Zeff: Ph.D. Student at UMCP, National Science Foundation Graduate Fellow (1997-2001), graduated 2003, currently radiologist at Washington University

Michael Oczkowski: Ph.D. Student at UMCP, jointly advised with Edward Ott for a year

Daniel Sisan: Ph.D. Student at UMCP, graduated 2004, currently Post-doc at Georgetown University

Woodrow Shew: Ph.D. Student at UMCP, graduated 2004, currently NSF postdoctoral researcher at ENS-Lyon

Kaveri Joshi: Ph.D. Student at UMCP, jointly advised with K.R. Sreenivasan, fourth year (current)

Greg Bewley: Ph.D. Student at Yale and UMCP, graduated 2007, currently at Max Planck

Doug Kelley: Ph.D. Student at UMCP, graduates 2009, currently post-doc. at Yale University

Benjamin Schwartz: Ph.D. Student at University of Marberg, one-year visit

Matthew Paoletti: Ph.D. Student at UMCP, graduated 2010, currently post-doc. at University of Texas.

Daniel Zimmerman: Ph.D. Student at UMCP, graduated 2010

Santiago Triana: Ph.D. Student at UMCP, graduated 2011

Enrico Fonda: Ph.D. Student at UMCP, graduated 2012, jointly advised with K.R. Sreenivasan

Cecilia Rorai: Ph.D. Student at UMCP, graduated 2012, jointly advised with K.R. Sreenivasan

Matthew Adams: current Ph.D. Student at UMCP

David Meichle: current Ph.D. Student at UMCP

Hansen Nordsiek: current Ph.D. Student at UMCP

Myunghwan Park: current Ph.D. Student at UMCP, jointly advised with John Rodgers

Post-Doctoral:

William T. Shi: Post-doctoral Fellow 1994-1996 at Emory, currently research assistant professor at T. Jefferson University.

Alexei Gumoulevski: Post-doctoral Fellow 1996-1997 at Emory and UMCP, currently working in private industry.

Alfred Cawthorne: Post-doctoral Fellow 1998-1999 at UMCP, currently lead development engineer at Neocera, Inc.

Nicholas Mujica: Post-doctoral Fellow 2002-2004 at UMCP, currently Associate Professor, Universidad de Chile, Santiago

Chirag Kalelkar: Post-doctoral Fellow 2006-2008 at UMCP, currently Post-doctoral Fellow at MIT

Daniel Zimmerman: Post-doctoral Fellow 2010-present

Santiago Triana: Post-doctoral Fellow 2011-2012 at UMCP

IV. SERVICE

a. Professional

Principal organizer, workshop on "Singularities in Nonlinear Physics, Mathematics, and Engineering," Santa Fe, N.M., January 4-6, 1998.

Principal organizer, conference, "Nonlinear Dynamics at the University of Texas: A Celebration of the 60th Birthday of H.L. Swinney," Austin, Texas, June 4-6, 2000.

Co-Organizer (with UMCP faculty in the Department of Mechanical Engineering), American Physical Society, Annual Meeting of the Division of Fluid Dynamics, Washington D.C., November 2000.

Referee for National Science Foundation (Materials Research, Mathematical Sciences, Engineering, Earth Sciences), Research Corporation, Physical Review Letters, Physical Review E, Physics of Fluids, Journal of Fluid Mechanics, Europhysics Letters, Physica D, Nature, and Science.

Review Panel Chair, NASA microgravity fluid physics program.

Editorial Board, SIAM Journal on Applied Dynamical Systems (SIADS).

Appointed to Chaos (journal) editorial advisory board, November 2001

APS, Division of Fluid Dynamics (APS/DFD), Acrovos prize committee - spring 2001

APS, Executive Committee, Topical group on statistical and nonlinear phys. (APS/GSNP) - fall 2001-2005.

Co-organized session at American Geophysical Union meeting, May 2002.

Dissertation committee for Micheal Bourgoïn, École Normale Supérieur, Lyon, France, July 2003.

APS topical group on statistical and nonlinear physics (GSNP), executive committee member at large, 2003-2004.

APS topical group on statistical and nonlinear physics (GSNP), secretary/treasurer, 2004-2006.

Science Demonstrations, Westover Elementary School, Silver Spring, MD, April 2007.

External Review Committee, Laboratory for Physics, École Normale Supérieur.

Hands-On Research in Complex Systems School, Instructor, Shanghai, China, June 2012.

b. University (last five years):

IPST director search committee - spring 2003.

Burgers Program for Fluids Dynamics Board member 2003-present.

Physics priorities committee - 2004-2005.

Physics APT committee - 2004-present.

Physics Honors Program Director - 2004-2005.

IPST Bioscience search committee - 2004-2005.

Hosted first Burgers Visiting Professor (Bruno Eckhardt) 2004-2005.

Maryland Day speaker 2005.

Physics CSR reorganization committee 2006.

Director, Institute for Research in Electronics and Applied Physics (approx. 25% time) 2005-2012.

Numerous faculty search duties in Physics, Electrical and Computer Engineering and Materials Science 2005-present.

Too many others to list 2005-present except:

Export Control Committee 2010-present.

UMD Senate 2010-present.

UMD Research Council 2012-present.