

Curriculum Vitae
Daniel Perry Lathrop
October 2008

1.) Personal Information:

Professor in Physics and Geology

Born: Walnut Creek, California, 1966.

Education:

B.A., Physics, University of California at Berkeley, 1987

Ph.D., Physics, University of Texas at Austin, 1991, Dissertation advisor: H.L. Swinney.

Positions:

Professor, Dept. of Geology, University of Maryland, 2007-.

Director, Institute for Research in Electronics and Applied Physics, University of Maryland, 2006-.

Professor, Dept. of Physics, University of Maryland, 2006-.

Professor, Institute for Physical Sciences and Technology, University of Maryland, 2006-.

Acting Director, Institute for Research in Electronics and Applied Physics, University of Maryland, 2005-2006.

Affiliate Professor, Dept. of Geology, University of Maryland 2005-.

Associate Professor, Institute for Physical Sciences and Technology, University of Maryland, 2005-2006.

Associate Professor, Dept. of Physics, University of Maryland, 2000-2006.

Assistant Professor, Dept. of Physics, University of Maryland, 1997-2000.

Member, Institute for Research in Electronics and Applied Physics, University of Maryland, 1997-.

Affiliate Professor, Institute of Physical Sciences and Technology, 1997-2004.

Assistant Professor, Dept. of Physics, Emory University, 1994-1997.

Associate Research Scientist, Dept. of Mechanical Engineering, Yale University, 1994.

Postdoctoral Research Associate, Dept. of Mech. Eng., Yale University, 1992-1994.

Postdoctoral advisor: K.R. Sreenivasan.

Research Affiliate, Dept. of Physics, Yale University, 1992-1994.

Technical Consultant, Tidal Electric Inc., Branford, CT, 1993-1994.

Lecturer, Depts. of Physics, Engineering, and Applied Science, Yale University, Spring 1992.

Research Assistant, Center for Nonlinear Dynamics, Dept. of Physics, University of Texas, 1988-1991.

Teaching Assistant, Dept. of Physics, University of Texas, 1987-1989.

2.) Research, Scholarly, and Creative Activities:

2a.) 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).

2b.) 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*, Vol. **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) J.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. Goumivlevski, 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. Lathro**+, "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. of 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," *Asto. 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," to appear in *J. Phys. Soc. of Japan* (2008).
- 41) M.S. Paoletti, M.E. Fisher, K.R. Sreenivasan, and D.P. Lathrop, "Reconnection dynamics for quantized vortices," submitted to *Physica D* (2008).

2d.i) 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 Modelling, 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, NC., 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.

2d.i) 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.

2e.i) 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) Ecole 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) Ecole 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.

2d.ii). 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 Modelling 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).

2e.) Films:

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

2) *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.

3) National Geographic Channel documentary, *Naked Science: the Earth's Core* starting 2005.

4) National Geographic Channel documentary, *Naked Science: the Earth's Origin* filmed June 2005, start Fall 2005.

5) National Geographic Channel documentary, *Naked Science: the Earth's Magnetic field* filmed May 2008

2e.) Interviews:

1) BBC Radio interview, broadcast June 2007.

2h.) Patents and Invention Disclosures:

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

- 2) P. Ullman and D.P. Lathrop, "Tidal Power Generator, CIP," U.S. Patent No. 5,872,406, Feb. 24, 1995.
- 3) D.P. Lathrop, "Engassing Device," Emory University Invention Disclosure 95022, Feb. 28, 1995.
- 4) D.P. Lathrop and A.B. Hassam, "Sonofusion," University of Maryland Invention Disclosure PS-98-004, Jan. 9, 1998.
- 5) 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.
- 6) 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.

2i.) Research Funding:

- 1) "Singular Gravity-Capillary Waves: Research Leading to New Technology," \$4,000, Emory University Research Committee, April 1, 1996 to Aug. 15, 1996. (P.I.)
- 2) "New Approaches to Tidal Power Production," \$7,593, Tidal Electric, Inc., Jan. 1, 1996 to Dec. 31, 1996. (P.I.)
- 3) "Collaborative Research to Detect Transitions in Turbulent Waves States," \$4,000, Emerson Center for Scientific Computation, with visiting scholar for 95-96 from Arizona State University, Prof. E.J. Kostelich. (co-P.I.)
- 4) "Surface Wave Engassing Measurements," \$6,000, GIFT summer program, through Hughes Foundation, May 15, 1995 to July 31, 1995. (P.I.)
- 5) "Turbulent Gravity-Capillary Waves and Gaseous Diffusion," \$4,000, Emory University Research Committee, April 1, 1995 to Aug. 15, 1995. (P.I.)
- 6) "New Approaches to Tidal Power Production," \$6,825, Tidal Electric, Inc., Sept. 1, 1994 to Aug. 30, 1995. (P.I.)
- 7) "Gravitational Effects in Aqueous Foams," \$15,000, Emory University Research Committee, Sept. 1, 1995 to Aug. 31, 1996. (P.I.)
- 8) "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.)
- 9) "Conference: Singularities in Nonlinear Physics, Mathematics, and Engineering," \$5,000, Office of Naval Research, Dec. 1, 1997 to Sept. 30, 1998. (P.I.)
- 10) "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.)
- 11) "Development of an Experimental Dynamo: Self-generating Magnetic Fields from a Liquid Metal," \$50,000, Cottrell Scholars Fellowship, Research Corporation, Oct. 1997. (P.I.)
- 12) "Characterization of Local Singularities: Self-focusing Wave Motion," \$500,000, NSF - Presidential Early Career Award, Sept. 1997 to May 2002. (P.I.)
- 13) "A Liquid Sodium Laboratory Model of the Earth's Outer Core," \$417,434, National Science Foundation, Aug. 1999 to July 2002. (P.I.)
- 14) "Development of a Three-Meter Liquid Sodium Geodynamo Model," \$1,100,640, National Science Foundation, Sept. 2001 to Aug. 2005. (P.I.)

- 15) "Liquid Sodium Geodynamo Models," \$361,531, National Science Foundation, June 2002 to June 2005. (P.I.).
- 16) "Intense Energy, Vorticity, and Strain Focusing in Nonlinear Fluid Flows," \$370,000, National Science Foundation, June 2003 to May 2006. (P.I.)
- 17) "French-American collaboration on MHD turbulence in liquid sodium," \$15,000, National Science Foundation, March 2002 to August 2003. (P.I.)
- 18) "Supplement to Development of a Three-Meter Liquid Sodium Geodynamo Model," \$220,000, National Science Foundation, Sept. 2001 to Aug. 2007. (P.I.)
- 19) "Liquid Sodium Models of Earth's Outer Core," \$467,000, National Science Foundation, July 2005 to June 2008. (P.I.)
- 20) "REU - Training and Research Experiences in Nonlinear Dynamics," \$264,750, National Science Foundation, March 2006 to February 2009. (co-P.I.)
- 21) "Rotating Nonlinear Flows in Normal and Quantum Fluids," \$482,454, National Science Foundation, May 2006 to April 2009. (P.I.)
- 22) "Collaborative Research: CSEDI-Integrating Numerical and Experimental Geodynamo Models," \$346,000, National Science Foundation, April 2007 to March 2010. (P.I.)
- 23) "MURI: Exploiting Nonlinear Dynamics for Novel Sensor Designs," \$1,713,393, Office of Naval Research, May 2007 to April 2010. (co-P.I.)

2j.) Fellowships/Awards:

- 1) Presidential Early Career Award, 1997.
- 2) Cottrell Scholars Fellowship, Research Corporation, 1997.
- 3) Richard A. Ferrell Distinguished Faculty Fellowship, 2004.
- 4) American Physical Society Fellowship, 2005.
- 5) Bullard Lecturer, American Geophysical Union, Dec. 2006.

3.) Teaching and Advising:

3.d) Teaching Awards:

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

3.f.i) Research Direction: undergraduate:

Barbara Brawn, Jon Maher, Christy Chew, Matthew Lohr (current)
 Andrew Chen (honors mentor 2004), Daniel Blum, Sandra Penny, Julie Arrighi, Morgan Varner, Benjamin Trahan, Khurram Gillani, Ben Kleber, Robert Rohde, Dagon Yuan, Marc Selbey, Dana Kirkwood-Watts, Sean Lawton, Bradley Levin, Benjamin Zeff, and Matthias Steffen.

3.f.ii) Research Direction: 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

3.f.iii) Research Direction: Doctoral:

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

Nick Peffley: Ph.D. Student at UMCP, graduated 2000 at UMCP, 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 at UMCP, currently Post-doc at Georgetown University

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

Daniel Zimmerman: Ph.D. Student at UMCP, third year (current)

Santiago Triana: Ph.D. Student at UMCP, third year (current)

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

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

Doug Kelley: Ph.D. Student at UMCP, third year (current)

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

3.f.iv) Research Direction: 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).

4.) Service:

4.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, Tx, 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, Ecole Normale Supérieure, 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.

4.b) University (last five years):

IPST director search committee - spring 2003. Burgers Program for Fluids Dynamics Board member 2003-current. Physics priorities committee - 2004-2005. Physics APT committee - 2004-current. 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-current. Numerous faculty search duties in Physics, Electrical and Computer Engineering and Materials Science 2005-current.

This Curriculum vitae is accurate and current
Daniel P. Lathrop