

Dr. Omar A. Hurricane

Lawrence Livermore National Laboratory

Work Phone: (925) 424-2701

E-mail: hurricane1@llnl.gov

Fax: (925) 423-5112

EMPLOYMENT:

-Program Element Leader, *Lawrence Livermore Nat'l Lab*-AX Division 2-1-04 to present
-Physicist, *Lawrence Livermore Nat'l Lab*-AX Division 9-8-98 to present
-Senior Scientist, *UCLA* Inst. of Plasma & Fusion Research 3-1-97 to 9-4-98
-Postdoctoral Fellow, *UCLA*-Dept. of Physics & Astronomy 9-1-94 to 9-4-98

INTERNSHIPS:

-Graduate Intern, *General Atomics*-Fusion Group 6-15-93 to 9-15-93
-Research Assistant, *Argonne Nat'l Lab*-Condensed Matter Theory Group 6-3-90 to 8-10-90
-Physical Science Aid, *NOAA*-P.R.O.F.S 7-11-89 to 9-30-89
-Research Aid, *Los Alamos Nat'l Lab*-Earth and Space Sciences 5 5-23-88 to 8-12-88
-Research Aid, *NCAR*-Atmospheric Technology Division 5-31-87 to 8-27-87

EDUCATION:

Ph.D. Physics	M.S. Physics	B.S. Physics & Applied Math
<i>UCLA</i> 1994	<i>UCLA</i> 1992	<i>Met. State Coll. Denver</i> 1990
GPA=3.932	GPA=3.932	GPA=4.0, Summa Cum Laude

AWARDS & HONORS:

-Lawrence Livermore National Laboratory Science & Technology Award 2010
-U.S. Dept. of Energy Ernest Orlando Lawrence Award for National Security and Nonproliferation 2009
-U.S. Dept. of Energy Recognition of Excellence Award in Weapons Science 2009
-Defence and Nuclear Technology's Acknowledgment Award for Contributions to the RRW/CA 2006
-Defence and Nuclear Technology's Acknowledgment Award to the Phoenix Experiment Team 2006
-U.S. Dept. of Energy Recognition of Excellence Award in Weapons Design 2004
-High Velocity Impact Society "Best Paper Award" 2003
-National Ignition Facility Programs Award for NIF Early Light Hydro IET 2003
-A-Program Award for "661 Tests and Analysis and Assessment Report" 2003
-U.S. Dept. of Energy Recognition of Excellence Award in Weapons Science 2002
-A-Program Award for "ASCI JASON'S Review" 2002
-Leader of "Best Research Project" of the Undergrad. Inst. in Applied Science (LLNL/UCD/Hertz) 1999
-Who's Who in Science & Engineering 1995-97
-Outstanding Student Paper Award, American Geophysical Union, Space Physics 1992
-United States Department of Energy Magnetic Fusion Science Fellowship 1991-94
-Chancellor's Fellow, University of California, Irvine 1990-91
-National Science Foundation Honorable Mention Recipient 1990
-Hertz Foundation Applied Science Research Fellowship Grant 1990
-National Collegiate Natural Science Award 1990
-Who's Who in American Colleges & Universities 1990
-APS Industrial Summer Internship Program, Finalist 1990
-Outstanding Student at Large-Academic Achievement (MSCD) 1990
-National Mathematical Competition in Modeling, Honorable Mention; Meritorious (2nd place) 1989,88
-Outstanding Student in the School of Letters, Arts, and Sciences (MSCD) 1989
-Colorado Scholarship for Physics (MSCD) 1987-90
-Colorado Scholarship for Mathematics (MSCD) 1988-90
-Peat Marwick Scholarship, Golden Key National Honor Society (MSCD) 1988
-Outstanding Achievement in the School of Letters, Arts, and Sciences (MSCD) 1987-88
-Dean's Scholarship (MSCD) 1986-87

SERVICE:

-Member of the *Center for Strategic and International Studies - Project On Nuclear Issues*, 2006-present.
-Nominating committee member of the APS Topical Group on Plasma Astrophysics, 2001.
-NASA Science Advisory Committee (SAC) on the Sun-Earth Connections SR & T Program, 1996.

PUBLICATIONS:

- 44 O.A. Hurricane, J.F. Hansen, E.C. Harding, R.P. Drake, H.F. Robey, B.A. Remington, C.C. Kuranz, M.J. Grosskopf, R.S. Gillespie, and H. Park, "Understanding the implications of the data from recent high-energy-density Kelvin-Helmholtz shear layer experiments," *J. of Physics: Conference Series*, in print, 2010.
- 43 E.C. Harding, J.F. Hansen, O.A. Hurricane, R.P. Drake, H.F. Robey, C.C. Kuranz, B.A. Remington, M.J. Bono, M.J. Grosskopf, R.S. Gillespie, "Observation of a Kelvin-Helmholtz Instability in a High-Energy-Density Plasma on the Omega Laser", *Phys. Rev. Lett*, **103**, 045005, 2009.
- 42 O.A. Hurricane, J.F. Hansen, H.F. Robey, B.A. Remington, M.J. Bono, E.C. Harding, R.P. Drake, C.C. Kuranz, "A high energy density shock driven Kelvin-Helmholtz shear layer experiment," *Phys. Plasmas*, **16**, 056305, May 2009.
- 41 O.A. Hurricane, "Design for a High Energy Density Kelvin-Helmholtz Experiment," *High Energy Density Physics*, doi:10.1016/j.hedp.2008.02002, 2008.
- 40 O.A. Hurricane and J.H. Hammer, "Bent Marshak Waves," *Phys. Plasmas*, **13**, 113303, 2006.
- 39 G.H. Campbell, G.C. Archbold, O.A. Hurricane, and P.L. Miller, "Fragmentation in biaxial tension," *J. Appl. Phys.*, **101**, 033540, 2007.
- 38 O.A. Hurricane, "Layzer type models for pressure driven shells," *Phys. Fluids*, **17**, 058103, 2005.
- 37 O.A. Hurricane and J.H. Hammer, "Pressure driven instability of a finite thickness fluid layer," Lawrence Livermore National Laboratory report number UCRL-JRNL-203840, April 2004.
- 36 S.W. Haan, P.A. Amendt, T.R. Dittrich, B.A. Hammel, S.P. Hatchett, M.C. Herrmann, O.A. Hurricane, O.S. Jones, J.D. Lindl, M.M. Marinak, D. Munro, S.M. Pollaine, J.D. Salmonson, G.A. Strobel, and L.J. Suter, "Design and simulations of indirect drive ignition targets for NIF," *Nuclear Fusion*, **44** (12), p. S171, 2004.
- 35 S.C. Cowley, H. Wilson, O. Hurricane, and B. Fong, "Explosive instabilities: from solar flares to edge localized modes in tokamaks," *Plasma Phys. Control. Fusion*, **45**, A31-A38, 2003.
- 34 S.W. Haan, P.A. Amendt, T.R. Dittrich, B.A. Hammel, S.P. Hatchett, M.C. Herrmann, O.A. Hurricane, O.S. Jones, J.D. Lindl, M.M. Marinak, D. Munro, S.M. Pollaine, J.D. Salmonson, G.A. Strobel, and L.J. Suter, "Update on indirect drive ignition target design for NIF," *Proceedings of the 2003 Third International Conference on Inertial Fusion Sciences and Applications (IFSA)*. *Op cit.* Lawrence Livermore National Laboratory Report UCRL-PROC-200470, 2003.
- 33 O.A. Hurricane, "Optimized minimal inductance transmission line configuration for Z-Pinch experiments," *J. Appl. Phys.*, **95**, 4503, 2004.
- 32 O.A. Hurricane, B.H.L. Fong, S.C. Cowley, "Explosive Instability of Prominence Flux Ropes," *Proceedings of the 3D Stellar Structure Workshop*, ASP Conference Series, Vol. CS-293, 2003.
- 31 O.A. Hurricane and J.H. Hammer, "Case Physics (U)," in *Def. Res. Rev. (U)*, **11**(3), UCRL-53880-11-3, p. 15, 2003.
- 30 T.J. Vogler, T.F. Thornhill, W.D. Reinhart, L.C. Chhabildas, D.E. Grady, L.T. Wilson, O.A. Hurricane, and A. Sunwoo, "Fragmentation of Materials in Expanding Tube Experiments," *Int. J. of Impact Engineering*, **29**, 735, 2003.
- 29 O.A. Hurricane, "Reanalysis of the Campos Event (U)," *Def. Res. Rev. (U)*, **10**, UCRL 53880-1, p. 47, 2002.
- 28 B.H. Fong, O.A. Hurricane, and S.C. Cowley, "Equilibrium and Stability of Prominence Flux Ropes," *Solar Physics*, **201**(3), 93, 2001.
- 27 H.F. Robey, J.O. Kane, B.A. Remington, R.P. Drake, O.A. Hurricane, H. Louis, R.J. Wallace, J. Knauer, P. Keiter, D. Arnett, and D.D. Ryutov, "An experimental testbed for the study of hydrodynamic issues in supernovae," *Phys. Plasmas*, **8**(3), 2446, 2001.

- 26 R. Pellat, O. LeContel, A. Roux, S. Perraut, O.A. Hurricane, and F.V. Coroniti, "Self-Consistent Kinetic Approach for Low-Frequency and Quasi-static Electromagnetic Perturbations in Magnetic-Mirror Confined Plasmas," a chapter in *Transport and Energy Conversion in the Heliosphere*, Springer Lecture Notes in Physics, Eds. J.-P. Rozelot, L. Klein, and J.-C. Vial, p. 165, 2001.
- 25 R. Pellat, O. LeContel, A. Roux, S. Perraut, O.A. Hurricane, and F.V. Coroniti, and J.-F. Luciani, "Une nouvelle approche pour les sous-orages magnétosphériques," *C.R. Acad. Sci. Paris, t. 1, Série IV*, 975, 2000.
- 24 O.A. Hurricane, B.D.G. Chandran, and S.C. Cowley, "Internal Kink Stability of Large Aspect Ratio High- β Tokamaks," *Phys. Plasmas*, 7(10), 4043, 2000.
- 23 R. P. Drake, H. F. Robey, O. A. Hurricane, B. A. Remington, J. Knauer, D. Arnett, D. Ryutov, J. Kane, K. Budil, J. Glimm, and J. Grove, "Experiments to Produce a Hydrodynamically Unstable, Spherically Diverging System of Relevance to Instabilities in Supernovae," *Ap. J.*, 564, 896, 2002.
- 22 O.A. Hurricane, S.G. Glendinning, B. Remington, R.P. Drake, and K. Dannberg, "Late-Time Hohlraum Pressure Development in Supernova Remnant Experiments," *Phys. Plasmas*, 8(7), 2609, 2001. *Op. cite. LLNL*, UCRL-JC-137858, 2000
- 21 J. Kane, H. Robey, B. A. Remington, R. P. Drake, J. Knauer, D. D. Ryutov, H. Louis, R. Teyssier, O. A. Hurricane, D. Arnett, R. Rosner, and A. Calder, "A Three-Layer Shock Imprint Experiment at the Omega Laser," *Phys. Rev. E*, 63, 055401, 2001.
- 20 R.P. Drake, J.J. Carroll III, T.B. Smith, P. Keiter, S.G. Glendinning, O.A. Hurricane, K. Estabrook, D.D. Ryutov, E. Michael, and R. McCray, "Laser Experiments to Simulate Supernova Remnants," *Phys. Plasmas*, 5, 2142, 2000.
- 19 O.A. Hurricane, E. Burke, S. Maples, and M. Viswanathan, "Saturation of Richtmyer's Impulsive Model," *Phys. Fluids*, 12(8), 2148, 2000. *Op. cite. LLNL*, UCRL-JC-135796, 1999.
- 18 O.A. Hurricane, "A Multiple Scale Approach to the Early Nonlinear Rayleigh-Taylor Instability," *LLNL*, UCRL-JC-133709, 1999.
- 17 B.H. Fong, S.C. Cowley, O.A. Hurricane, "Metastability in Magnetically Confined Plasmas," *Phys. Rev. Lett.*, 82(23), 4651, 1999.
- 16 S. Chu, L.A. McNair, S. Elliot, C.-C. A. Lai, M. Maltrud, P.W. Jones, O.A. Hurricane, R.P. Turco, and R.C. Dugdale, "Ecodynamics and Dissolved Gas Chemistry Routines for Ocean Circulation Models," *Computers and Chemistry*, 23, 447, 1999.
- 15 O.A. Hurricane, B.H. Fong, S.C. Cowley, F.V. Coroniti, C.F. Kennel, and R. Pellat, "Substorm Detonation," *J. Geophys. Res.*, 104(A5), 10,221, 1999.
- 14 O.A. Hurricane and P. L. Miller, "Shock Transmission and Reflection from a Material Interface and Subsequent Reflection from a Hard Boundary," *LLNL UCRL-ID-132586*, 1998.
- 13 O.A. Hurricane, B.H. Fong, S.C. Cowley, F.V. Coroniti, C.F. Kennel, and R. Pellat, "Substorm Detonation-The Unification of Substorm Trigger Mechanisms," *Substorms-4*, Eds. S. Kokubun and Y. Kamide, ISBN 0-7923-5465-6, Terra Scientific Publishing (Tokyo, Japan) and Kluwer Academic Publishers (Norwell, MA), p. 373, 1998.
- 12 O.A. Hurricane, "Rotating toroidal equilibria of quasi-neutral and non-neutral plasmas," *Phys. Plasmas*, 5(6), 2197, 1998.
- 11 S. Widdowson, O.A. Hurricane, and S.C. Cowley, "The Continuum of Unstable Magnetohydrodynamic Modes in a Simple Magnetized Atmosphere," *Phys. Plasmas*, 5(5), 1259, 1998.
- 10 O.A. Hurricane, B.H. Fong, and S.C. Cowley, "Nonlinear Magnetohydrodynamic Detonation: Part I," *Phys. Plasmas*, 4, (10), 1997.
- 9 O.A. Hurricane, "MHD Ballooning Stability of a Sheared Plasma Sheet," *J. Geophys. Res.*, 102, 19,903, 1997.

- 8 R. Pellat, O.A. Hurricane, and J.F. Luciani, "A New Dissipation Mechanism for Three Dimensional Reconnection in Astrophysical Plasmas," *Phys. Rev. Lett.*, *77*, 4354, 1996.
- 7 O.A. Hurricane, R. Pellat, and F.V. Coroniti, "Instability of the Lembege-Pellat Equilibrium Under Ideal MHD," *Phys. Plasmas*, *3*, (6), 1996.
- 6 R. Pellat, O.A. Hurricane, and J.F. Luciani, "The Kinetic Description of Low Frequency Instabilities," *Third International Conference on Substorms (ICS-3)*, E. J. Rolfe and B. Kaldeich eds., European Space Agency Publications Division (SP-389 ESTEC Noordwijk, The Netherlands), 1996.
- 5 O.A. Hurricane, R. Pellat, and F.V. Coroniti, "A New Approach to Low Frequency 'MHD-like' Waves in Magnetospheric Plasmas," *J. Geophys. Res.*, *100*, (A10), 19421, 1995.
- 4 O.A. Hurricane, T.H. Jensen, and A.B. Hassam, "Two-Dimensional Magnetohydrodynamic Simulation of a Flowing Plasma Interacting with an Externally Imposed Magnetic Field," *Phys. of Plasmas*, *2*, (6), 1995.
- 3 O.A. Hurricane, R. Pellat, and F.V. Coroniti, "The Stability of a Stochastic Plasma with respect to Low Frequency Perturbations," *Phys. Plasmas*, *2*, (1), 1995.
- 2 R. Pellat, O.A. Hurricane, and F.V. Coroniti, "Multipole Stability Revisited," *Phys. Plasmas*, *1*, (10), 1994.
- 1 O.A. Hurricane, R. Pellat, and F.V. Coroniti, "The Kinetic Response of a Stochastic Plasma to Low Frequency Perturbations," *Geophys. Res. Lett.*, *21*, 253, 1994.

CONFERENCE PAPERS:

- 54 O.A. Hurricane, J.F. Hansen, E.C. Harding, R.P. Drake, H.F. Robey, B.A. Remington, C.C. Kuranz, G.Q. Langstaff, M.J. Grosskopf, and H.-S. Park, "Blast-wave driven Kelvin-Helmholtz shear layers in a laser driven high-energy-density plasma," **(Invited)** *8th International Conference on High Energy Density Laboratory Astrophysics*, March 15-18, 2010.
- 53 O.A. Hurricane, J.F. Hansen, H.F. Robey, B.A. Remington, E.C. Harding, R.P. Drake, C.C. Kuranz, "Understanding the implications of the data from recent high energy density Kelvin-Helmholtz shear layer experiments," *Int. Fusion Sci. App.*, Sept. 2009, San Francisco, California.
- 52 E.C. Harding, R.P. Drake, R.S. Gillespie, M.J. Grosskopf, C.C. Kuranz, A. Visco, O.A. Hurricane, J.F. Hansen, B.A. Remington, H.F. Robey, M.J. Bono, Y. Aglitskiy, J.L. Weaver, A.L. Velikovich, T. Plewa, "Subsonic and supersonic shear flows in laser driven high-energy-density plasmas," *Int. Fusion Sci. App.*, Sept. 2009, San Francisco, California.
- 51 O.A. Hurricane, "A High Energy Density Shock Driven Kelvin-Helmholtz Shear Layer Experiment **(Invited)**," in *Bull. 50th Annual American Physical Society Meeting (DPP)*, Nov. 17-21, 2008, Dallas, Texas.
- 50 O.A. Hurricane and J.H. Hammer, "Bent Marshak Waves," *Bull. 46th Annual American Physical Society Meeting (DPP)*, Oct. 24-27, 2005, Denver, Colorado.
- 49 C.A. Back, O.A. Hurricane, J.H. Hammer, J.I. Castor, S.A. Maclaren, O.L. Landen, M.D. Rosen, "Radially-Resolved Measurements of the Effect of Boundary Walls in Radiation Transport Experiments," *Bull. 46 Annual American Physical Society Meeting (DPP)*, Oct. 24-27, 2005, Denver, Colorado.
- 48 C.A. Back, J.H. Hammer, J.I. Castor, S.A. Maclaren, O.A. Hurricane, C. Constantin, O.L. Landen, T.R. Dittrich, M.D. Rosen, "Experimental investigation of a radiation dominated decaying shock," *Bull. 45 Annual American Physical Society Meeting (DPP)*, Nov. 15-19, 2004, Savannah, Georgia.
- 47 S.W. Haan, P.A. Amendt, G.W. Collins, T.R. Dittrich, S.G. Glendinning, S.P. Hatchett, M.C. Herrmann, O.A. Hurricane, O.S. Jones, J.A. Koch, M.M. Marinak, D. Munro, S.M. Pollaine, J.D. Salmonson, G.A. Strobel, and L.J. Suter, "Simulations of ignition capsule implosions and of Omega Rayleigh Taylor experiments," *Inertial Fusion Sciences Conference*, Oct. 2003, Monterey California.

- 46 O.A. Hurricane, "Equilibrium and Explosive Instability of Prominence Flux Ropes," 3D Stellar Evolution Workshop, July 2002, Livermore, California.
- 45 O.A. Hurricane, "Viscous MHD Detonation," in *Bull. 43rd Annual American Physical Society Meeting(DPP)*, Oct. 2001, Long Beach California.
- 44 R.P. Drake, P. Keiter, K.E. Korreck, K. Dannenberg, H.A. Robey, T. Perry, J.O. Kane, B.A. Remington, R.J. Wallace, O.A. Hurricane, D.D. Ryutov, J. Knauer, R. Teyssier, A. Calder, D. Arnett, Y. Zhang, N. Turner, R. McCray, J. Grove, "Supernova hydrodynamics on the Omega laser, motivated by astrophysics," in *Bull. 43rd Annual American Physical Society Meeting(DPP)*, Oct. 2001, Long Beach California.
- 43 R.P. Drake, P. Keiter, K.E. Korreck, K. Dannenberg, H.A. Robey, T. Perry, J.O. Kane, B.A. Remington, R.J. Wallace, O.A. Hurricane, D.D. Ryutov, J. Knauer, R. Teyssier, A. Calder, D. Arnett, Y. Zhang, N. Turner, R. McCray, J. Grove, "Compressible hydrodynamics on the Omega laser, motivated by astrophysics," Cal. Tech Mix Meeting, December 2001.
- 42 R. P. Drake, H. A. Robey, O. A. Hurricane, B. A. Remington, D. D. Ryutov, J. O. Kane, R. J. Wallace, J. Knauer, Y. Zhang, J. Glimm, J. Grove, D. Arnett, "A hydrodynamically unstable, spherically divergent system of relevance to supernovae," in *Bull. 42st Annual American Physical Society Meeting(DPP)*, Oct., 2000, Quebec, Canada. *Op. cit* American Astronomical Society Meeting June 2001.
- 41 R. P. Drake, P. Keiter, J. J. Carroll III, S. G. Glendinning, O. A. Hurricane, K. Estabrook, B. A. Remington, E. Michael, R. McCray, "Analysis of Unstable Structures in Laboratory Experiments to Simulate Supernova Remnants," 30th Annual Anomolous Absorbtion Conference, 2000.
- 40 P. Keiter, R. P. Drake, K. K. Dannenberg, J. J. Carroll III, S. G. Glendinning, O.A. Hurricane, K. Estabrook, B. A. Remington, E. Michael, R. McCray, "Modeling of Hohlraum Stagnation Pressure in a Supernova Remnant Simulation Experiment," 30th Annual Anomolous Absorbtion Conference, 2000.
- 39 O.A. Hurricane, H. Robey, J. Kane, B.A. Remington, R.P. Drake, and R. Teyssier "Spherically Divergent Rayleigh-Taylor Experiments on the Omega Laser," Third International Conference on Laser Astrophysics, April 30-March 1, 2000, Houston, Texas.
- 38 P. Keiter, R.P. Drake, J.J. Carroll III, K. Dannenberg, S.G. Glendinning, O.A. Hurricane, K. Estabrook, B.A. Remington, E. Michael, and R. McCray, "Modeling of Hohlraum Stagnation Pressure in a Supernova Remnant Simulation Experiment," Third International Conference on Laser Astrophysics, April 30-March 1, 2000, Houston, Texas.
- 37 E. Michael, R. McCray, O.A. Hurricane, K. Estabrook, B.A. Remington, P. Keiter, R.P. Drake, J.J. Carroll III, K. Dannenberg, and S.G. Glendinning, "VH-1 Numerical Simulations of the Laboratory Experiments to Simulate Supernova Remnants," Third International Conference on Laser Astrophysics, April 30-March 1, 2000, Houston, Texas.
- 36 J. Kane, H. Robey, K.S. Budil, B.A. Remington, O.A. Hurricane, M.J. Edwards, D. Ryutov, R.P. Drake, and B. Fryxell, "Modeling of Multiple Layer and Divergent Geometry Astrophysical Hydrodynamics Experiments on the Nova and Omega Lasers," Third International Conference on Laser Astrophysics, April 30-March 1, 2000, Houston, Texas.
- 35 O.A. Hurricane, "Supernova Laboratory Astrophysics in Spherical Geometry," *Frontier Science at the National Ignition Facility*, Oct. 4-6, 1999, Pleasanton, California.
- 34 H.F. Robey, J. Kane, O. Hurricane, B.A. Remington, R.P. Drake, and J. Knauer, "Recent results from Astrophysically Relevant Hydrodynamic Experiments on the Omega Laser," *Frontier Science at the National Ignition Facility*, Oct. 4-6, 1999, Pleasanton, California.
- 33 O.A. Hurricane, B. Remington, R.P. Drake, H. Robey, J. Kane, and R. Teyssier, "CALE Simulation of the Spherically Divergent NLUF 2 Experiment," in *Bull. 41st Annual American Physical Society Meeting(DPP)*, Nov. 15-19, 1999, Seattle, Washington, RP1.111

- 32 H.F. Robey, B.A. Remington, J.O. Kane, O. Hurricane, R.P. Drake, R. Teyssier, and J. Knauer, "Recent Results from Astrophysically Relevant Hydrodynamic Experiments on the Omega Laser," in *Bull. 41st Annual American Physical Society Meeting(DPP)*, Nov. 15-19, 1999, Seattle, Washington, abstract RP1.95
- 31 P. Drake, J.J. Carroll III, T. Smith, H.A. Reisig, G. Glendinning, K. Estabrook, O.A. Hurricane, B.A. Remington, R. Wallace, E. Michael, and R. McCray, "Supernova Remnant Simulation Experiments Using the NOVA Laser," IFSA meeting, France, September, 1999.
- 30 O.A. Hurricane, "CALE Simulation of the Supernova Remnant Experiment," 29th Annual Anomalous Absorption Conference, June 13-18, 1999, Pacific Grove California.
- 29 P. Drake, T. Smith, H.N. Reisig, S.G. Glendinning, K. Estabrook, O.A. Hurricane, B.A. Remington, R. Wallace, J.J. Carroll III, E. Michael, and R. McCray, "Hydrodynamic Instabilities in Supernova Remnant Simulation Experiments," US/Japan Workshop on Laboratory Astrophysics, Atlanta, Georgia, March 22-26, 1999.
- 28 P. Drake, T. Smith, H.N. Reisig, S.G. Glendinning, K. Estabrook, O.A. Hurricane, B.A. Remington, R. Wallace, J.J. Carroll III, E. Michael, and R. McCray, "Hydrodynamic Instabilities in Supernova Remnant Simulation Experiments," 29th Annual Anomalous Absorption Conference, June 13-18, 1999, Pacific Grove, California.
- 27 B.H. Fong, O.A. Hurricane, and S.C. Cowley "Nonlinear Ballooning Modes and Substorm Triggering," in *EOS, Transactions*, American Geophysical Union Fall Meeting, Dec. 6-10, 1998, San Francisco, California, SM32E-05.
- 26 O.A. Hurricane, B.D.G. Chandran, and S.C. Cowley, "Kink Stability of High- β Equilibria," in *Bull. 40th Annual American Physical Society Meeting(DPP)*, Nov. 16-20, 1998, New Orleans, Louisiana, G4Q.29.
- 25 R.D. Sydora, O.A. Hurricane, V.K. Decyk, S.C. Cowley, and J.M. Dawson, "Gyrokinetic Simulation of Trapped Ion Pressure Gradient-Driven Turbulence in the Near Edge Region of a Diverted Tokamak Plasma," in *Bull. 40th Annual American Physical Society Meeting(DPP)*, Nov. 16-20, 1998, New Orleans, Louisiana, F3Q.04.
- 24 B.H. Fong, S.C. Cowley, and O.A. Hurricane, "Metastable and Explosive Plasmas," in *Bull. 40th Annual American Physical Society Meeting(DPP)*, Nov. 16-20, 1998, New Orleans, Louisiana, C2S.17.
- 23 R.D. Sydora, O. Hurricane, V.K. Decyk, S.C. Cowley, and J.M. Dawson, "Global Toroidal Gyrokinetic Particle Simulation of Turbulent Transport in a Diverted Tokamak Plasma," *International Sherwood Fusion Theory Conference*, Atlanta, Georgia, March 19-21, 1998.
- 22 O.A. Hurricane, "Ion Stochasticity and Ballooning Mode Detonation," (**Invited Paper**) *ICS-4 International Conference on Substorms*, March 9-13, 1998, Lake Hamana, Japan.
- 21 O.A. Hurricane, "Substorm Detonation," in *EOS, Transactions*, American Geophysical Union Fall Meeting, Dec. 8-12, 1997, San Francisco, California, SM04.
- 20 F.V. Coroniti, O.A. Hurricane, and P.L. Pritchett, "Toward a Theory for the Breakup Auroral Arc," in *EOS, Transactions*, American Geophysical Union Fall Meeting, Dec. 8-12, 1997, San Francisco, California, SM07.
- 19 B.H. Fong, S.C. Cowley, and O.A. Hurricane, "Ideal Magnetohydrodynamic Detonation and Solar Prominence Destabilization," in *EOS, Transactions*, American Geophysical Union Fall Meeting, Dec. 8-12, 1997, San Francisco, California, SH04.
- 18 O.A. Hurricane, "Non-Neutral and Quasi-Neutral Toroidal Equilibrium with Sheared Rotation," in *Bull. 39th Annual American Physical Society Meeting(DPP)*, Nov. 17-21, 1997, Pittsburgh, Pennsylvania, 1.05.
- 17 B.H. Fong, S.C. Cowley, and O.A. Hurricane, "Ideal Magnetohydrodynamic Detonation," in *Bull. 39th Annual American Physical Society Meeting(DPP)*, Nov. 17-21, 1997, Pittsburgh, Pennsylvania, 1.03.

- 16 R.D. Sydora, V.K. Decyk, J.M. Dawson, O.A. Hurricane, S.C. Cowley, "Global and Local Scale Interaction Effects from a Nonlinear Toroidal Gyrokinetic Particle Simulation Model," in *Bull. 39th Annual American Physical Society Meeting(DPP)*, Nov. 17-21, 1997, Pittsburgh, Pennsylvania, 2.25.
- 15 O.A. Hurricane, B.H. Fong, and S.C. Cowley, "Nonlinear Magnetohydrodynamic Detonation of Solar Flares," American Astronomical Society Division of Solar Physics Meeting, June 26-July 2, 1997, Bozeman, Montana, 1.78.
- 14 B.H. Fong, S.C. Cowley, and O.A. Hurricane, "Explosive Ballooning Modes and High β Disruptions," *International Sherwood Fusion Theory Conference*, April 28, 1997, Madison, Wisconsin, 2B05.
- 13 R.D. Sydora, O. Hurricane, S.C. Cowley, V.K. Decyk, and J.M. Dawson, "3D Global Gyrokinetic Simulation of Anomalous Transport in General Magnetic Equilibria," *Turbulent Transport Processes Conference*, 1997.
- 12 O.A. Hurricane, B.H. Fong, and S.C. Cowley, "Nonlinear Magnetohydrodynamic Detonation: Part I," in *EOS, Transactions*, American Geophysical Union Fall Meeting, Dec. 15-19, 1996, San Francisco, California, SH71B-10.
- 11 B.H. Fong, O.A. Hurricane, and S.C. Cowley, "Nonlinear Magnetohydrodynamic Detonation: Part II," in *EOS, Transactions*, American Geophysical Union Fall Meeting, Dec. 15-19, 1996, San Francisco, California, SH71B-10.
- 10 O.A. Hurricane, B.H. Fong, and S.C. Cowley, "Nonlinear Magnetohydrodynamic Detonation: Part I," in *Bull. 38th Annual American Physical Society Meeting(DPP)*, Nov. 11-15, 1996, Denver, Colorado.
- 9 B.H. Fong, O.A. Hurricane, and S.C. Cowley, "Nonlinear Magnetohydrodynamic Detonation: Part II," in *Bull. 38th Annual American Physical Society Meeting(DPP)*, Nov. 11-15, 1996, Denver, Colorado.
- 8 R. Pellat and O.A. Hurricane, "Kinetic Description of Low Frequency Instabilities," (**Invited Paper**) *ICS-3 International Conference on Substorms*, May 12-17, 1996, Versailles, France.
- 7 S.C. Cowley, B. Fong, and O.A. Hurricane, "Detonation and Ballooning Modes," *International Sherwood Fusion Theory Conference*, March 18-20, 1996, Philadelphia, Pennsylvania, 2C40.
- 6 R. Pellat, O.A. Hurricane, and F.V. Coroniti, "Instability of the Lembege-Pellat Equilibrium Under Ideal MHD," in *EOS, Transactions*, American Geophysical Union Fall Meeting, Dec. 11-15, 1995, San Francisco, California, SM21A-01.
- 5 O.A. Hurricane, and R.P. Turco, "Stratospheric Aerosols and Blue Jets?" in *EOS, Transactions*, American Geophysical Union Fall Meeting, Dec. 11-15, 1995, San Francisco, California, A32C-03.
- 4 O.A. Hurricane, R. Pellat, and F.V. Coroniti, "The Kinetic Theory and Stability of a Stochastic Plasma with respect to Low Frequency Perturbations and Magnetospheric Convection," in *EOS, Transactions*, American Geophysical Union Fall Meeting, Dec. 5-9, 1994, San Francisco, California, SM41A-30.
- 3 O.A. Hurricane, A.B. Hassam, and T.H. Jensen, "MHD Simulation of Driven Islands," in *Bull. 35th Annual American Physical Society Meeting (DPP)*, Nov. 1-5, 1993, St. Louis, Missouri, 2S10.
- 2 R. Pellat, O.A. Hurricane, and F.V. Coroniti, "Quadrupole Stability Revisited," in *Bull. 35th Annual American Physical Society Meeting (DPP)*, Nov 1-5, 1993, St. Louis, Missouri, 6E06.
- 1 O.A. Hurricane, R. Pellat, and F.V. Coroniti, "The Kinetic Response to Low Frequency Perturbations in a Chaotic Plasma," in *EOS, Transactions*, American Geophysical Union Fall Meeting, Dec. 7-11, 1992, San Francisco, California, SM32A-11.

REFERENCES:

Prof. Steven C. Cowley, Director
Culham Center for Fusion Energy
Abingdon OX14 3DB
United Kingdom
+44 (0)12 3546 6531 (Culham)
+44 (0)20 7594 3791 (Imperial College)
steve.cowley@imperial.ac.uk

Prof. John M. Cornwall
UCLA
Dept. of Physics & Astronomy
405 Hilgard Ave.
Los Angeles, CA 90095-1547
(310) 825-3162
cornwall@physics.ucla.edu

Dr. Paul E. Dimotakis
John K. Northrop Professor of Aeronautics
and Professor of Applied Physics
California Institute of Technology
1200 East California Boulevard, MS 301-46
Pasadena, CA 91125
(626) 395-4456
dimotakis@caltech.edu

Prof. R. Paul Drake
Henry Smith Carhart Collegiate Professor of
Space Science and Professor of Applied Physics
University of Michigan
2455 Hayward St.
Ann Arbor, MI 48109-2143
(734) 763-4072
rpdrake@umich.edu

Dr. Paul L. Miller
Associate Division Leader
AX-Division
Lawrence Livermore National Lab, L-022
Livermore, CA 94550
(925) 423-6455
pmiller@llnl.gov

Prof. George Morales
UCLA
Dept. of Physics & Astronomy
405 Hilgard Ave.
Los Angeles, CA 90095-1547
(310) 825-4318
morales@physics.ucla.edu