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### VITA

Wendell Horton

Web Site: <http://www.ph.utexas.edu/dept/research/horton/>

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###### Education

* B.S., Physics, The University of Texas at Austin, 1963
* M.S., Physics, University of California, San Diego, 1965
* Ph.D., Physics, University of California, San Diego, 1967

###### Professional Experience

* University of São Paulo, Particle Transport and Turbulence in Confined Plasmas, Applied Physics Department of the Institute of Physics Brazil, April 1-May 30, 2014.
* Mediterranean Institute for Advanced Research, CNRS-PIIM, Aix-Marseille University, Marseille, France, October 2012-August 2013.
* Research Scientist, Space and Geophysics Laboratory, Applied Research Laboratory at

The University of Texas at Austin, 2007-present (research on ionospheric turbulence).

* Adjunct Professor, Rice University, Department of Space Physics and Astronomy, 1992-2002.
* Visiting Scientist, Dept. of Controlled Fusion Research, CEA, Cadarache, France, July 5-15, 1998 and June 15-July 9, 1999 and October 2012-August 2013.
* Visiting Scientist, Institute for Theoretical Physics, University of California, Santa Barbara, January-May 1995.
* Visiting Scientist, Institute for Theoretical Physics, University of California, Santa Barbara, January-May 1985.
* Research Scientist, Institute for Fusion Studies, 1980 to present.
* Professor of Physics, The University of Texas at Austin, 1977 to present.
* Guest of Max-Planck Institüt für Plasmaphysik, August 1977.
* Guest of Georgian Academy of Sciences, Tbilisi, USSR, October 1976.
* Visited Kurchatov Institute of Atomic Energy, Moscow, USSR, June 1976. Toured Soviet Laboratories, I.V. Kurchatov Institute of Atomic Energy, Moscow, Efremov; Electro-Physical Devices Institute, Leningrad; Ioffe Physical-Technical Institute, Leningrad; Physical-Technical Institute, Karkov, August 1973.
* Visiting Scientist, Max-Planck Institüt für Plasmaphysik, Garching, 1973.
* Research Scientist, Fusion Research Center, 1969-1980
* Research Scientist, Fusion Research Center, 1969-1980.
* Associate Professor of Physics, The University of Texas at Austin, 1969-1977.
* Member, Institute for Advanced Study, Princeton, New Jersey, 1967-1969.
* Visiting Research Associate, Princeton Plasma Physics Laboratory, Princeton, New Jersey, 1967-1969.
* Visiting Scientist, International Centre for Theoretical Physics, Trieste, Italy, 1965-1966.

###### Professional Societies

###### American Physical Society, 1964 to present

###### American Geophysical Union, 1966 to present

###### Professional and Public Service

* Certificate of Appreciation called *Props for Profs* from CNS Student Organization to recognize Dedication to Teaching and Outstanding Service to Students, May 2009.
* Organized the 4th ITER International Summer School at The University of Texas from May 31-June 4, 2010. The Director-General of ITER, October 2009, wrote the letter authorizing this activity on behalf of the ITER Organization. The meeting drew 137 participants to the AT&T Center representing 48 universities and 17 countries.
* Natural Sciences Council 2007 Faculty Service Award, Recognition of Outstanding Service to the Students in the College of Natural Sciences, signed by Dean David Laude, May 2007.
* Member, Excellence in Geophysical Education Award Committee, American Geophysical Union, July 2004-June 30, 2006.
* Chair, Selection Committee for the Excellence in Plasma Physics Research Award, American Physical Society, 2005.
* Vice-Chairman, Selection Committee for the Excellence in Plasma Physics Research Award, American Physical Society, 2004.
* Co-Chair, Local Organizing Committee for 2003 International Sherwood Fusion Theory Conference, Corpus Christi, Texas, May 28-30, 2003.
* Thermonuclear Panel Member of CEA Committee that compared the Ignitor and Reduced Cost ITER Tokamak Options for the Next Step in Fusion Power.
* Chairman of AGU Fall San Francisco Session SM52 on Substorms and Storms I, December 6, 2002.
* Member of IFS Advisory Committee from January 2001.
* Thermonuclear Tokamak Panel, Commissariat a L’Energie Atomique, for evaluation of Ignitor and ITER-FEAT, Paris, France, November 1999-2000.
* Program Committee for IAEA Technical Meeting on First Principles Methods in Plasma Transport, Kloster Seeon, Germany, June 1999.
* External Review on the PhD dissertation at Australia National University of J. L. V. Lewandowski on *Drift Wave Models for 3-Dimensional Plasmas*, 1998.
* Organizer of DPP-APS Mini Conference on Space and Astrophysics, New Orleans, November 1998.
* Correspondent for *Comments on Plasma Physics and Controlled Fusion*, Ed. G. J. Morales, UCLA, beginning 1992-1999.
* Member of DoE Panel for review of Computational Scientific Initiative (CSI) on Nonlinear Complex Phenomena, Washington, February 23-24, 1998.
* Member of NSF/DOE Panel for review of Basic Plasma Physics Proposals, Washington, June 2-5, 1997.
* Member of PBX-M Advisory Committee, Princeton Plasma Physics Laboratory, March 1995.
* Judge of 5th Texas State Science and Engineering Fair, The University of Texas at Austin, April 1991.
* Panel member of Review Committee for NRA-91-OSSA-11 Magnetospheric Physics, NASA, September 1991.
* Advisory Committee on Director Search, Institute for Fusion Studies, The University of Texas at Austin, 1991.
* Member of Program Committee, The American Physical Society, Division of Plasma Physics, 1991.
* Member of Executive Committee for Sherwood International Theory Conference, 1989-1991.
* Advisory Committee, Physics of Fluids B Editor Search, American Institute of Physics, April 1990.
* Member of Fellowship Committee, The American Physical Society, Division of Plasma Physics, 1990.
* Organizing Committee, *IV International Workshop on Nonlinear and Turbulent Processes in* *Physics*, Kiev, USSR, October 9-22, 1989.
* Associate Editor, Physics of Fluids 1987-1989.
* Organizing Committee, *International Conference on Stochasticity and Turbulence in Plasmas*, University of California, Santa Barbara, March 1985.
* Chairman, US-Japan Management Committee of the Joint Institute for Fusion Theory [JIFT] January 1983.
* Organizing Committee, *Workshop on Drift Wave Turbulence and Anomalous Transport*, Austin, Texas, January 1982.
* Organizing Committee, *Workshop on Statistical Physics and Chaos in Fusion Plasmas*, Austin, Texas, December 1982.
* Organizing Committee, *Workshop on Long-Time Prediction in Nonlinear Conservative Systems*, Austin, Texas, March 1981.
* Co-chairman of Organizing Committee for Sherwood Theory Conference, Austin, Texas, April 1981.
* Organizing Committee for US-Japan Workshop on *Theory of Non-Axisymmetric Confinement* *Systems*, Austin, Texas, December 1980.
* Member of Start-up Review Committee for US-Japan Agreement for Cooperation in Fusion Research, 1980-1981.
* Member of Tokamak Fusion Test Reactor Physics Advisory Committee, U.S. Energy Research and Development Administration, 1975-1980.
* Advisor on Mirror Containment Research in U.S. Energy Research and Development Administration, 1963-1977.
* Member of Paper Selection Committee for Sherwood Theory Conference, 1976.
* Member of Plasma Properties Advisory Committee responsible for Five-Year Plan in Research Programs of the Division of Controlled Thermonuclear Research in the U.S. Atomic Energy Commission, 1973-1974.
* Chairman of Organizational Committee for Sherwood Theory Conference at The University of Texas at Austin, March 1973.
* Orientation Lecture to Selected High School Graduates in Northeast Texas, sponsored by Texas Atomic Energy Research Foundation, 1970.
* Referee for *Physical Review*, *Physics of Fluids*, *Nuclear Fusion*, *Plasma Physics*, *Journal* *of Plasma Physics, Geophysical Research Letters, Physics Letters,* and *Journal of Geophysical Research*.

###### Awards and Honor Societies

* Named one of top ten journal referees by Nuclear Fusion, 2005.
* Journal of Geophysical Research Editor’s Citation for Excellence in Refereeing in Space Physics signed by Prof. Tamas Gambosi in 1994.
* Certificate of Appreciation signed by 1992 by William Haper as Director of the Office of Energy Research in the Department of Energy for service to Fusion Programs for in collaborations with Japan.
* Fellow, American Physical Society, 1983.
* Alfred P. Sloan Foundation Fellowship, 1975-1977.
* Phi Beta Kappa, 1963 Phi Kappa Phi, 1963.

###### Invited Lectures

###### W. Horton, *Comparison of the electron thermal transport between tokamaks and the FRC C-2U TAE*, US-Japan Workshop on Compact Tori, August 22–24, 2016 University of California at Irvine, Irvine, California.

*Temperature-Gradient Drift Mode in the Columbia Linear Machine,* with O. Yamagishi and A. K. Sen, Sherwood Theory Conference, April 23, 2010, Seattle, Washington.

W. Horton, *Electron Temperature-Gradient Drift Mode in the Columbia Linear Machine,* with O. Yamagishi and A. K. Sen, Sherwood Theory Conference, April 23, 2010, Seattle, Washington.

W. Horton, *Nonlinear Dynamics of the Electromagnetic Ion Cyclotron Structures, Firehose and Whistlers*, Nonlinear Waves Workshop 8, La Jolla, CA, March 1-5, 2010 (organized by Dr. Bruce Tsurutani, Jet Propulsion Laboratory, Pasadena, CA).

W. Horton, M. L. Mays, E. Spencer, and J. Kozyra, *Real-Time Prediction of Geomagnetic Storms and Substorms*, CCMC Community Workshop, Key Largo, Florida, January 26, 2010 (organized by Dr. Michael Hesse, Goddard Space Flight Center, MD).

W. Horton, *Drift-Wave Turbulence*, invited seminar, Institute for Plasma Physics and Fusion, Peking University, October 15, 2009. (Invitation from Prof. X. G. Wang, Physics Department of Peking University).

W. Horton, *Storms and Substorms Driven by the Solar Wind*, International Workshop on Substorms, Peking University, October, 2009 (invitation from Prof. Joe Kan, University of Alaska, conference organizer).

*Nonlinear Dynamics of the Electromagnetic Ion Cyclotron Structures, Firehose and Whistlers*, Nonlinear Waves Workshop 8, La Jolla, CA, March 1-5, 2010.

*Parameter Optimization Studies for a Tandem Mirror Neutron Source*, W. Horton, S. Fu, A. Beklemishev, and A. Ivanov, Innovative Concept Conference, Princeton, New Jersey, February 16-19, 2010.

*Drift-Wave Turbulence*, W. Horton, Institute for Plasma Physics and Fusion, Peking University, October 15, 2009.

*Validation of Electron Transport Models in ECH Driven TCV Plasmas*, W. Horton, J. Kim, E. Asp, and TCV Team, Joint EU-US Transport Task Force Workshop, San Diego, CA, April 28-May 1, 2009.

*Turbulent Impurity Transport Modeling on Alcator C-Mod Tokamak*, W. Horton, X. Fu, I. Bespamyatnov, S. Benkadda, S. Futatani, and X. Garbet, Association Euratom-CEA, Cadarache, France, June 8, 2009.

*Nonlinear Ionosphere Turbulence Driven by Solar Wind*, Modern Challenges in Nonlinear Plasma Physics, W. Horton, Macedonia, Greece, June 15-19, 2009.

*Laboratory Dipole-Target Experiments to Simulate the Solar Wind-Magnetosphere*, W. Horton, P Brady, T. Ditmire, and M. Mays, Science with High-Power Lasers and Pulsed Power Workshop, July 28, 2009.

*Electron Thermal Transport and Impurity Transport*, Department of Energy UT Site Visit, August 27, 2009.

*Storms and Substorms From Real-Time Solar Wind Data Through Basic Physics Model*,

W. Horton, L Mays, and E. Spencer (Utah State University) Symposium on Earth Sun Exploration, Kona, Hawaii, January 14-18, 2008.

*Electromagnetic Eigenmodes and Spectral Gaps*, J. Pratt and W. Horton at 21st US Transport Taskforce Workshop, March 25-28, 2008.

*Modeling of Reversal Er Transport in Gamma 10 Experiment,* W. Horton, P. Morrison, J. Pratt, and X. Fu, the 7th International Conference on Open Magnetic Systems, Daejeon, Korea, July 16-19, 2008.

*Electron Thermal Transport*, Center for Astrophysics and Space Science, University of California at San Diego, La Jolla, California, January 2008.

*Energy Confinement Scaling Predictions for the Gamma-10 Tandem Mirror*, University of Tsukuba, Tsukuba, Japan, May 14-21, 2007.

*Magnetic Reconnection in the Geomagnetic Tail*, Space Physics Colloquium, Rice University, March 12, 2007.

*Real-Time Physics Modeling of Storms and Substorms from Solar Wind Data,* Colloquium at the Naval Research Laboratory, Washington, DC, April 2007.

*Drift Wave Transport*, First ITER School, Aix-en Provence July 16, 2007.

*Electron Transport in Tokamaks*, First ITER School, Aix-en Provence, July 20, 2007.

*Energy Confinement Predictions for the Stabilized Tandem Mirror and GAMMA-10*, W. Horton, J. Pratt, and H. L. Berk, Innovative Confinement Concepts Workshop, University of Maryland, February 12-14, 2007.

*Electron Thermal Transport*, Center for Astrophysics and Space Science, University of California at San Diego, La Jolla, California, January 2007.

*Energy Confinement Scaling Predictions for the Gamma-10 Tandem Mirror*, University of Tsukuba, Tsukuba, Japan, May 17, 2007.

*Magnetic Reconnection in the Geomagnetic Tail*, Space Physics Colloquium, Rice University, March 12, 2007.

*Real-Time Physics Modeling of Storms and Substorms from Solar Wind Data,* Colloquium at the Naval Research Laboratory, Washington, DC, April 2007.

*Drift Wave Transport*, First ITER School, Aix-en Provence, July 16, 2007.

*Electron Transport in Tokamaks*, First ITER School, Aix-en Provence, July 20, 2007.

*Laboratory Dipole-Target Experiments to Simulate Solar Wind-Magnetopshere Interactions,* IPELS Conference, Australia, August 5-10, 2007.

*Analysis of the October 4-6, 2000 GEM Storm with the WINDMI Model,* Invited Plenary Talk, NSF GEM 2005 Conference, Santa Fe, New Mexico, June 30, 2005.

*Firehose Turbulence as the Source of Pi2 Precursors to Dipolarization Events,* Individual Workshop Talk, NSF GEM 2005 Conference, Santa Fe, New Mexico, June 30, 2005.

*The Vorticity Probe for the KH and Drift Wave Turbulence,* Invited Talk, University of

California, Los Angeles Seminar, June 23, 2005*.*

*Physical Processes Leading to Hard Electron Fluxes from Magnetic Storms*, National Radio Science Meeting, Boulder, Colorado, January 5-8, 2005.

*Nonlinear Evolution of the Firehose Instability in a Magnetic Dipole Geotail Geometry,*

46th Annual Meeting of the Division of Plasma Physics, American Physical Society, Savannah, Georgia, November 15-19, 2004, Bulletin of Am. Phys. Soc. 49 (8).

*Electron thermal transport in NSTX and Tore Supra,* lead-author invited poster paper, IAEA Fusion Conference, Vilamoura Portugal, paper TH/P3-5 November 1-6, 2004.

*Solar Wind Driven Storms and Substorms with High Energy Electron Injections into the Inner Magnetosphere,* 16th National Congress 2005, Australian Institute of Physics, Keynote Talk, Congress Handbook and Abstracts, p. 240, January 30-February 4, 2005.

*The Theory of Magnetized Rossby Waves,* Center for Ionospheric Research/Space and Geophysics Laboratory, Applied Research Laboratories, The University of Texas at Austin, July 8, 2004.

*Theory of Magnetized Rossby Waves in Weakly Ionized Plasmas,* Institute for Fusion Studies VIP Seminar, May 18, 2004.

*Electron Transport in NSTX and TS,* U.S. Transport Task Force Meeting, Salt Lake City, Utah April 29-May 2, 2004.

*Hall MHD Solitons, Shocks and the Acceleration of Reflected Electrons,* 5th International Conference on High Energy Density Laboratory Astrophysics, Tucson, Arizona, 2004.

*Windmi-RC: A Family of Physics Network Models for Storms,* Presented at the Conference on Sun-Earth Connection: Multiscale Coupling in Sun-Earth Processes, Kona, Hawaii, February 9-13, 2004.

*Solar Wind Driven Magnetosphere and Space Weather,* Space Physics and Astrophysics Program at 126th AAPT (American Association of Physics Teachers), National meeting, Austin, Texas, January 14, 2003.

*Electron transport and the critical gradient,* 45th Annual Meeting of the Division of Plasma Physics, American Physical Society, Albuquerque, New Mexico, October 27-31, 2003.

*Astrophysics Simulation Experiments,* FOCUS Retreat, The University of Texas at Austin, March 7-8, 2003.

*Substorm Dynamics from a Low-Order Physics Model,* Colloquium, Department of Space Physics and Astronomy, Rice University, February 2, 1999.

*Fundamental Transport Suppression Mechanisms Arising from Reversed Magnetic Shear and Radial Electric Field Shear,* Workshop on Nonequilibrium and Nonlinear Plasma Phenomena, The University of Texas at Austin, January 12, 1999.

*Predictive Tests of ITG-Based Models of Tokamak Heat Transport on ITER-Database Discharge,* W. Horton, M. Erba, and M. Ottaviani, Eleventh Transport Task Force Workshop, Atlanta, Georgia, March 18-21, 1998.

*Formation Mechanism and the Dynamics of Internal Transport Barriers*, Ninth Transport Task Force Workshop, Philadelphia, PA, March 12-16, 1996.

Space Plasma Physics Seminar, Southwest Research Institute, San Antonio, March 1996.

Space Plasma Physics Seminar, Rice University, April 1996.

*The H-Mode Workshop at PPPL and Remarks on Power Thresholds for Transitions,* Institute for Fusion Studies seminar, The University of Texas at Austin, Texas, October 1996.

Presentation of the Horton-Tajima group’s work on transport barriers at the IAEA H-mode Workshop, Princeton Plasma Physics Lab, October 1995.

*Coherent Structures in Plasma Turbulence,* Transport Chaos and Plasma Physics 2, Marseilles, France, July 10-22, 1995.

*Energy-Momentum Transport in Tokamaks*, Canadian Association of Physicists' 1995 (50th Anniversary) Congress, Laval University, Quebec City, Quebec, June 1995.

*Extended Radial Structures and the Effect of Shear-Flow*, H. Horton, T. Tajima, M. Ottaviani, and G. Hu, Conference on Numerical Simulations of Plasma Turbulence, Institute for Theoretical Physics, University of California, Santa Barbara, California, April 10-15, 1995.

*Analysis of the Transport Barriers in JT60-V and PBX-M*, Transport Task Force Workshop, Marina del Rey, California, March 1995.

*Pressure Gradient Driven Shear-Flow*, with contributions from G. Hu and J. Krommes, Institute for Theoretical Physics, University of California, Santa Barbara, California, March 31, 1995.

*Energy and Momentum Transport in a Global Night-Side Low-Dimensional Magnetospheric Model*, W. Horton, T. Tajima, and I. Doxas, the MIT Cambridge Space Plasma Physics Symposium, February 20-25, 1995.

*Ion Temperature Gradient Driven Turbulent Transport*, with contributions from J-Q. Dong, B. Dorland, M. Kotschenreuther, M. LeBrun, T. Tajima, and F.L. Waelbroeck, International Symposium in Honor of Bruno Coppi, Massachusetts Institute of Technology, January 1995.

*Report on the Transport Barrier in PBX-M*, The Department of Physics Seminar, The University of Texas, Austin, Texas, October 1995.

*Effect of Sheared Flows on Confinement,* Plasma Physics Seminar, The University of Texas, Austin, Texas, September 1994.

*Influence of Sheared Flows on Turbulence and Confinement*, Theory Seminar, Princeton Plasma Physics Laboratory, Princeton, October 1994.

*Effect of Plasma Flows on Transport*, Energy Quality and Control Workshop, Japan Atomic Energy Research Institute, Japan, July 1994.

*Transport in Fusion Plasmas*, Chalmers University of Technology, Sweden, June 1994.

*Anomalous Dissipation Due to Chaotic Orbits*, International Workshop on Nonlinear Waves and Chaos in Space Plasmas, Japan, June 1994.

*L-H Transition from the Interaction of Neoclassical and Turbulent Transport Effects*, Energy Quality and Control Workshop, Japan Atomic Energy Research Institute, Japan, December 1993.

*Shear Flow Generation From the Interaction of Neoclassical and Turbulence Transport Effects*, Plasma Physics Seminar, The University of Texas, Austin, Texas, October 1993.

*Update on ηi Mode Calculations*, Core Fluctuation Working Group, DPP-APS St. Louis, November 1993.

*Self-Consistent Plasma Pressure Tensors from the Tsyganenko Magnetic Field Models*, Department of Space Physics and Astronomy, Rice University, January 1992.

*Characteristics of the Dielectric Tensor in the Geomagnetic Tail*, AGU Chapman Conference, Kauai, Hawaii, February 1992.

*Landau Resonances in 2D-Hamiltonian Systems with Chaotic Orbits*, Department of Physics, University of California, Berkeley, August 1991.

*Drift Wave Vortices in Inhomogeneous Plasmas*, III Potsdam-V Kiev International Workshop on Nonlinear Processes in Physics, Potsdam, New York, August 1991.

*Impurity Transport Studies in TEXT and T-10*, US-Japan Workshop, Madison, Wisconsin, August 1991.

*Ion Temperature Gradient Driven Transport in the TFTR Transport Discharge*, TTF Transport Workshop, The University of Texas, Austin, Texas, March 1991.

*Collisionless Transport in Magnetic Field Loops and FRCs*, Department of Physics, The University of Texas, Austin, January 1991.

*Collisionless Plasma Transport Across Loop Magnetic Fields*, W. Horton, American Physical Society-Division of Plasma Physics, Cincinnati, Ohio, November 1990; Bull. Am. Phys. Soc. 35, 1940 (1990).

*Collisionless Conductivity in the Geomagnetic Tail From Chaotic Orbits*, American Geophysical Union 1990, Baltimore, Maryland, May 1990.

*Anomalous Electron Transport from Skin Depth Scale Turbulence Driven by GRAD-Te*, US-Japan Workshop, Madison, Wisconsin, March 1990.

*Transport from Short Wavelength Fluctuations and Large Scale Vortices*, TTF Transport Workshop, Hilton Head, South Carolina, February 1990.

*Transition from Resistive-G to ηi Turbulence in Torsatrons*, Oak Ridge National Laboratory, February 1990.

*Vortex Structures in Magnetized Plasmas*, National Radio Science Meeting, University of Colorado, Boulder, January 1990.

*Drift Wave Vortices and Anomalous Transport*, IV International Workshop, Kiev, USSR, October 1989.

*Collisionless Resistivity in Reversed Magnetic Field Configurations*, Southwest Research Institute, San Antonio, Texas, August 1989.

*Orbital Stochasticity and Collisionless Resistivity in Reversed Magnetic Field Configurations*, US-Japan Workshop, Boulder, Colorado, July 1989.

*Electron Temperature Gradient Driven Turbulence and Skin Depth Transport*, Sherwood International Theory Conference, San Antonio, Texas, April 1989.

*Drift Wave Vortices and Anomalous Transport*, US-Japan Workshop, Nagoya University, Japan, March 1989.

*Drift Wave Vortices and Anomalous Transport*, Beijing, China, January 1989.

*ηi Kinetic Theory Modifications of MHD*, US-Japan Workshop, Princeton Plasma Physics Laboratory, January 1989.

*Anomalous Transport and Dynamics of Non-Resonant Kinks in Reversed Field Pinches*, US-Japan Workshop, SAIC-San Diego, California, January 1989.

*Electromagnetic Drift Mode Transport Formulas and Empirical Scaling for Tokamaks*, IAEA 12th International Conference on Plasma Physics and Controlled Nuclear Fusion Research, Nice, France, October 1988.

*Short Wavelength Electron Temperature Gradient Drive Drift Wave Turbulence in Tokamaks*, Joint Varenna-Lausanne International Workshop on Theory of Fusion Plasmas, Lausanne, Switzerland, October 1988.

*Ion and Electron Temperature Gradient Modes*, The University of Texas at Austin, Institute for Fusion Studies, July 1988.

*Alphas and the ηi Mode*, Alpha Particle Theory Problems Workshop, Institute for Fusion Studies, The University of Texas at Austin, January 1988.

*Quasi-Coherent Transport by Vortices and Vortex-Wave Interactions*, US-Japan Workshop, The University of Texas at Austin, December 1987.

*Solitary Vortices in Rotating Plasmas*, Nonlinear Dynamics Seminar, The University of Texas at Austin, November 1987.

*Drift Wave Vortices and Anomalous Transport*, Bull. Am. Phys. Soc. 32, 1907, November 1987.

*Driven Reconnection*, Astrophysical Plasma Seminar, The University of Texas at Austin, October 1987

*Fusion*, Physics Department Orientation for New Graduate Students, The University of Texas at Austin, August 1987.

*Linear Theory of Driven Reconnection*, Southwest Research Institute, San Antonio, Texas, August 1987.

*Drift Wave Vortices and Anomalous Transport*, Science Applications International Corporation, Plasma Physics Division, McLean, VA, July 1987.

*Drift Wave Turbulence Driven by Sheared Flows*, Korea Advanced Institute of Science and Technology, Seoul, Korea, March 1987.

*Driven Reconnection: Linear and Renormalized Quasilinear Theory*, US-Japan Workshop, University of Hiroshima, Japan, March 1987.

*Stationary Vortices and Transport in Non-Axisymmetric Toroidal Plasmas*, Fusion Research Center Workshop on Turbulence in Confined Plasmas, The University of Texas at Austin, February 1987.

*Electron Thermal Transport from Electromagnetic Drift Wave Fluctuations*, US-Japan Workshop, GA Technologies, San Diego, CA, February 1987.

*Wakeless Triple Soliton Accelerator*, Plasma Physics Seminar, Institute for Fusion Studies, The University of Texas at Austin, December 1986.

*Kelvin-Helmholtz Instabilities and Vortices in Magnetized Plasmas*, Nonlinear Dynamics Workshop sponsored by The University of Texas at Austin and Department of Mathematics of the University of Houston, The University of Texas at Austin, October 1986.

*Plasma Kelvin-Helmholtz Instability in the Magnetopause Boundary Layer*, Southwest Research Institute, San Antonio, Texas, August 1986.

*Vortex States in Inhomogeneous Rotating Plasma*, Sherwood Theory Conference, New York, April 1986.

*Transport in Drift Waves*, Statistical Physics Workshop, Nagoya, Japan, February 1986.

*Anomalous Transport from Drift Fluctuations*, Fluctuations and Transport Workshop, The University of Texas at Austin, February 1986.

*Triple Soliton and Phase Velocity Control by Plasma Fiber in a Beat Wave Accelerator*, International Laser Science Conference, The University of Texas at Dallas, November 1985.

*Drift Waves, Vortices, and Turbulence*, Nonlinear Dynamics Seminar, The University of Texas at Austin, Physics Department, October 7, 1985.

*Drift Waves and Vortices*, Institute for Theoretical Physics, University of California, Santa Barbara, May 1985.

*Drift Modes with Differential Rotation and Passing Electrons*, Workshop on Low- Frequency Fluctuation in Tandem Mirrors, The University of Texas at Austin, May 1985.

*Drift Wave Turbulence*, International Conference on Stochasticity, Turbulence, and Long-Time Prediction in Plasmas, University of California, Santa Barbara, March 1985.

*Drift Wave Turbulence and Anomalous Transport*, California Institute of Technology, Pasadena, California, February 1985.

*Effect of Noise and Pump Depletion on the Plasma Beat Wave Acceleration*, 2nd Workshop on Laser Acceleration of Particles, Malibu, California, January 1985.

*Ion Acoustic Turbulence and Anomalous Transport*, Los Alamos Conference on Transport and Propagation in Nonlinear Systems, Los Alamos, New Mexico, May 21-25, 1984.

*Beat Wave Accelerator and the Effect of Plasma Noise*, Aspen Center for Physics, June 1984.

*Fluctuations and Solitons in Drift Wave Turbulence*, Workshop on Chaos and Coherent Structures in Fluids, Plasmas and Solids, Los Alamos, New Mexico, June 1-3, 1983.

*Pressure Gradient Driven Modes and Thermodynamics of Anomalous Drift Wave Transport*, U.S.-Japan Workshop on Anomalous Transport and Critical Beta, Nagoya, Japan, February 28-March 4, 1983.

*Statistical Properties of Drift Wave Turbulence*, Workshop on Statistical Physics and Chaos in Fusion Plasmas, Austin, Texas December 13-17, 1982.

*Drift Wave Turbulence and Anomalous Transport,* Review Talk at American Physical Society-Division of Plasma Physics, New Orleans, Louisiana, November 1982.

*Frequency Spectrum for Drift Wave Turbulence*, Anomalous Transport Workshop, Massachusetts Institute of Technology, March 1982.

*Anomalous Ion Thermal Conductivity*, US-Japan Workshop on Drift Wave Turbulence, Austin, Texas, January 1982.

*Drift Wave Turbulence*, American Physical Society Meeting, New York, November 1981.

*Renormalized Turbulence Theories for the Ion Acoustic Problem*, Los Alamos National Laboratory, May 1981.

*Anomalous Ion Thermal Conductivity from Toroidal Drift Wave Turbulence*, Princeton Plasma Physics Laboratory, March 1981.

*Renormalized Turbulence Theory*, Prigogine Workshop, Lakeway, Texas, March 1981.

*Drift Waves and Transport in the Tandem Mirror*, Tsukuba University, Japan, November 1980.

*Anomalous Ion Thermal Conduction due to Drift Wave Turbulence*, Hiroshima University, November 1980.

*Kinetic Plasma Theory in the U.S. Fusion Program*, Nagoya University Japan, October 1980.

*Anomalous Drift-wave Transport in Tandem Mirrors*, Aspen Center for Theoretical Physics, June 1980.

*Anomalous Transport due to Drift Wave Turbulence*, International Workshop on Nonlinear and Turbulent Processes in Physics, Kiev, USSR, September 1979.

*Renormalized Turbulence Theory*, Aspen Center for Theoretical Physics, June 1979.

*Inhibition of the Trapped-Ion Mode by Drift-Wave Turbulence*, Sherwood Theory Meeting, Mount Pocono, Pennsylvania, April 1979.

*Anomalous Transport*, Drift Waves Workshop in Trieste, Italy, September 1978.

*Anomalous Transport due to Drift Waves*, Imperial College, London, England, August 1978.

*RF Noise Correlated with Neutral Beam Injection in Tokamaks*, Joint Varenna-Grenoble International Symposium on Heating in Toroidal Plasmas, Grenoble, July 1977.

*Anomalous Transport from Drift Wave Fluctuations*, Max-Planck Institüt für Plasmaphysik, Garching, West Germany, August 1977.

*Anomalous Transport in Tokamaks*, Christophilos Summer School and International Conference, Spétses, Greece, July 1977.

*Renormalized Plasma Turbulence Theory*, and *Spectral Distribution of Drift Wave Fluctuations in Tokamaks*, Physics Department, University of California, San Diego; June 1977.

*Drift Model for Anomalous Transport in Tokamaks*, Colloquium, Princeton Plasma Physics Laboratory, Princeton, New Jersey; *Renormalized Plasma Turbulence*, Theoretical Seminar, November 1976.

*Correlations between the Drift Wave Model and the Anomalous Transport Observed in Tokamaks*, Department of Controlled Fusion, Fontenay-aux-Roses, Paris, France, October 1976.

*Scaling Laws for Ion-Acoustic Heating from Renormalized Turbulence Theory*, and *Drift Wave Turbulence in Tokamaks*, Georgian Academy of Sciences, Tbilisi, USSR, September 1976.

*Microinstability Theory of Two-Energy-Component Toroidal Systems* *and* *Ion Acoustic Heating from Renormalized Turbulence Theory*, Kurchatov Institute of Atomic Energy, Moscow, USSR, June 1976.

*Microinstability Theory of Tokamaks*, Plasma Physics Seminar, University Libre Brussels, Belgium, May 1976.

*Renormalized Turbulence Theory*, Plasma Physics Seminar, Physics Department, University of California, Berkeley, March 1976.

*Studies of Turbulent Heating from Renormalized Turbulence Theory*, The University of Texas at Austin, Physics Department Colloquium, October 1975.

*Turbulent Heating in Tokamaks*, Theoretical Seminar at Lawrence Livermore National Laboratory, September 1975.

*Studies of Ion Acoustic Turbulence from Renormalized Turbulence Theory*, Plasma Physics Divisional Meeting of the American Physical Society, Albuquerque, New Mexico, 1974.

*Radial Normal Mode Stability Theory of Trapped Electron Mode*, University of California, Lawrence Berkeley Laboratory, Berkeley, April 1974.

*Secular Perturbation Theory of the Vlasov Equation*, Symposium on Turbulence and Nonlinear Effects in Plasmas, Culham-SRC, England, July 1973.

*Spectrum for Ion-acoustic Turbulence from Renormalized Vlasov Turbulence Theory*, Theory Seminar at Max-Planck Institüt für Plasmaphysik, Garching, West Germany, July 1973.

*Drift Wave and Trapped Particle Instabilities in Tokamaks*, Theory Seminar at Max Planck Institüt für Plasmaphysik, Garching, West Germany, June 1973.

*Modified Kadomtsev Spectrum from Renormalized Plasma Turbulence Theory*, Theory Seminar at The University of Texas at Austin, March 1973.

*Diffusion from Low-Frequency Fluctuations in a Straight Tokamak Model*, Theory Seminar at The University of Texas at Austin, March 1973.

*Drift Wave Instabilities in Tokamaks*, Los Alamos Scientific Laboratory, Los Alamos, New Mexico, March 1972.

*Bootstrap Current-driven Drift Instability in Tokamaks*, Courant Institute of Mathematical Sciences, New York University, March 1971.

*Drift Waves in Tokamak Geometry*, Washington Meeting of the American Physical Society, April 1971.

*Conditions for Drift Wave Instabilities in Tokamak Systems*, Theory Seminar at Princeton University, Princeton, NJ, April 1970.

*Modified Negative Mass Instability*, Theory Seminar at Oak Ridge National Laboratory, Oak Ridge, TN, April 1969.

*Amplitude Limitation and Transport for Collisional Drift Waves*, Theory Seminar at Oak Ridge National Laboratory, Oak Ridge, TN, April 1969.

*Stability and Nonlinear Evolution of the Ion Flute Mode*, Theory Seminar at the University of California Lawrence Radiation Laboratory, Berkeley, CA, May 1968

###### University and Departmental Committees

* IFS Director’s Advisory Committee, 2001 to present
* Physics Department/IFS Faculty Search Committee, 1992-1993
* IFS Seminar Committee, 1987-present
* Junior Advisor in Physics Department, 1987-1989
* Sophomore Advisor in Physics Department, 1986-87
* Freshman Advisor in Physics Department, 1985-86
* IFS Computer Committee, 1984-1989
* Faculty Welfare Committee, 1980-1982
* Space Committee in Physics Department, 1977
* Computer Usage Committee in Physics Department, 1976
* Graduate Studies Sub-committee in Physics Department, 1974-1976
* Minority Recruitment Committee for Physics Department, 1975-1976
* Undergraduate Affairs Committee, 1972-1974
* Chairman, Parking and Traffic Appeals Panel for University, 1973-1975
* Chairman, Dean's Ad Hoc Committee for Priority on Academic Development and Teaching Equipment Funds, 1973-1974.
* Organized Plasma Physics Seminars, 1970-1973

###### Significant Activities in Student Affairs and Courses Taught

* Advising undergraduate pre-med students taking Phys. 203L on preparing for MCAT and wrote letters of recommendation for medical school Admission, 2003 to present.
* Advising junior physics students, 1988-89
* Advising graduate students, 1969 to present
* Advising freshman and sophomore physics students, 1969-75
* Advising undetermined majors, 1974
* Lectured to freshmen in Summer Orientation Program, 1971 and 1972
* Assisted Prof. R.N. Little with teaching Physical Science before adopted by Physics Department

PHY 609 Physics for Non-Technical Students

PHY 302K,L General Physics-Tech

PHY 303L Engineering Physics II

PS 303, 304 Physical Science

PHY 306 Elementary Physics Methods

PHY 385K Classical Mechanics

PHY 385L Statistical Physics

PHY 387K,L Electricity and Magnetism

PHY 380L Introductory Plasma Physics

PHY 380M Plasma Stability Theory

PHY 390M Advanced Plasma Physics

PHY 391M,N Nonlinear Plasma Theory

PHY 390C Special Topic in Plasma Physics

PHY 391S Plasma Physics Seminar

PHY 104 Introductory Physics Seminar

###### Graduate Student Supervision

###### Ph.D. Degrees Supervised

* Dr. Lung Cheung: *Stability of Tokamaks from the Drift Kinetic Equation*, 1972.

*Position:* Teaching in the Department of Electronics, The Chinese University of Hong Kong, Shatin, New Territories, Hong Kong.

* Dr. Thomas Gladd: *Shear Stabilization of Drift Wave Normal Modes*, 1973.

*Position:* Research Scientist in Plasma Physics Center, University of Maryland.

* Dr. Robert Koch: *Renormalized Plasma Turbulence Theory*, 1975.

*Position:* Research Associate, Princeton Plasma Physics Laboratory, Princeton, New Jersey.

* Dr. L.P. Mai: *Stability of Two-Energy-Component Toroidal Systems*, 1976.

*Position:* Research Associate in Plasma Physics Center, the University of Wisconsin, Madison, Wisconsin.

* Dr. William H. Miner, Jr.: *Two-Dimensional Structure of the Trapped Electron Mode*, 1978.

*Position:* Research Associate, Science Applications, Inc., Virginia.

* Dr. Stephen H. Brecht: *Parametric Dependence of Ion Cyclotron Instabilities Driven by Neutral Beam Injection*, 1978.

*Position:* Research Associate, Science Applications, Inc., Maryland.

* Dr. Paul Willis Terry: *Theoretical Aspects of the Nonlinear Interaction of Drift-Type Instabilities*, 1981.

*Position:* Post-doctoral appointment, Institute for Fusion Studies, Austin, Texas.

* Dr. Jixing Liu: *The Linear Instability and Nonlinear Motion of Rotating Plasma*, 1985.

*Position:* Post-doctoral appointment, Institute for Fusion Studies, Austin, Texas.

* Dr. Franco Cozzani: *Local Effect of Equilibrium Current on Tearing Mode Stability*, 1985.

*Position:* Research Associate, Max-Planck Institüt für Plasmaphysik, Garching, West Germany.

* Dr. James Alexander Robertson: *Stochastic Electron Dynamics Due to Drift Waves in a Sheared Magnetic Field and Other Drift Motion Problems*, 1986.

*Position:* Research Associate, Varian Corporation, Boston,

* Dr. Isidoros Doxas: *E× B Stochastic Diffusion and the Nonadiabatic behavior of the Magnetic Moment*, 1985.

*Position:* Research Associate, University of Colorado, Boulder.

* Dr. Xiang Ning Su: *Drift Wave Coherent Vortex Structures in Inhomogeneous Plasmas*, 1992

*Position*: IBM software products

* Dr. Jose V. Hernandez Ochoa: *Particle Dynamics and Collisionless Conductivity of the Plasma Sheet in the Geomagnetic Tail*, 1994

*Position:* Los Alamos National Laboratory, Los Alamos, New Mexico.

* Dr. James P. Smith: *Low-Dimensional Modeling of the Earth's Magnetosphere*, 1999

*Position:* Los Alamos Scientific Laboratory

* Dr. Robert S. Weigel: *Prediction and Modeling of Magnetospheric Substorms*, 2000

*Position:* Goddard Space Flight Center NRC Fellowship

* Dr. Christopher Crabtree: *Ballooning Stability of the Earth’s Magnetosphere*, May 2003.

*Position*: University of California, Irvine

* Dr. Manish Mithaiwala: *Substorm Induced Electron Energization,* May 2005

*Position:* Naval Research Laboratory, Washington, DC

* Dr. Jean Carlos Perez: *Theory and simulations of sheared flows and drift wave in the LAPD and the Helimak*, May 2006

*Position:* Postdoctoral Student, Physics Department, University of Madison, Madison, Wisconsin

Dr. Edmund Spencer: *Analysis of Geomagnetic Storms and Substorms with the WINDMI Model*, Electrical & Computer Engineering, May 2006

*Position:* Assistant Professor, Utah State University, Logan, Utah

* Dr. Jean Carlos Perez: *Theory and simulations of sheared flows and drift wave in the LAPD and the Helimak*, May 2006

*Position:* Postdoctoral Student, Physics Department, University of Madison, Madison, Wisconsin

* Dr. Jean Carlos Perez: *Theory and simulations of sheared flows and drift wave in the LAPD and the Helimak*, May 2006

*Position:* Postdoctoral Student, Physics Department, University of Madison, Madison, Wisconsin

* Dr. Jane Pratt: *Drift wave stability and transport in the Tandem Mirror Confinement Devices,* May 2009.

*Position:* Max Planck Institüt für Plasma Physics, Garching, Germany

Dr. Leila Mays: *The Study of Interplanetary Shocks, Geomagnetic Storms, and Substorms with the WINDMI Model*, July 2009

Postdoctoral Position: NRC Fellowship, Goddard Space Flight Center, Maryland.

Dr. Shaoping Lu, *Abrupt Global Warmings in the last Ice Age with Inverse Bayesian methods applied to Greenland Ice Core Samples*, August 2010.

Xiangrong Fu, *Turbulent Particle and Thermal Transport in Magnetized Plasmas*, May 2012. Post-doctoral Position, Los Alamos Scientific Laboratory

Cynthia Correa: *Studies of Transient Behavior and of the Unbounded Magnetized Plasma Jet Configuration in the Magnetohydrodynamic Regime,* May 2015.

Jingfei Ma: *The macro- and micro-instabilities in the pedestal region of the Tokamak,*

May 2015

Master’s Degrees Supervised

* Wei-Tai Lin: *Charged Particle Energization from Solar Winds*, November 2003
* Daniel Kiefer: *Nonlinear Interaction of Wave Beams upon Reflection at a Sloping Boundary*, August 2007

###### Research in Progress and Research Grants

Theoretical studies of plasma dynamics are being carried out under a U.S. Department of Energy contract and NSF Grant. The general purpose of the programs is to provide the scientific understanding the turbulent transport processes in plasmas. This includes the study of equilibrium, stability and transport in both laboratory and space environments. The primary funding is through the Institute for Fusion Studies with the mission to provide the necessary understanding to support the quest for controlled thermonuclear fusion. The primary thrust of the NSF work is to provide theory and modeling to support understanding of the solar wind driven the magnetic storms and substorms in the Earth’s space environment. These space storms disrupt communications and power distributions systems. The research involves graduate students and post-doctoral students.

###### Research Support

* NSF Grant AGS 0964692 received June 15, 2010-2013 for three years of research on *Physics*

*Modeling of Solar Wind Driven Magnetospheric Storms and Substorms.*

* SciDAC Grant from Department of Energy DE-FC02-08ER54961, 2008-2011, Gyrokinetic

Simulations with UC Irvine.

* NSF Grant ATM -0638480 Space Plasma Physics.
* Three-year National Science Foundation Grant for *Storms and Substorms from Kinetic Plasma*

*Theory Modeling*. $320,026 for April 2007-March 2010.

* Two-year National Science Foundation Grant for *Plasma Dynamics in the Solar Wind Driven Magnetosphere-Ionosphere System - Solar Wind Driven Magnetospheric Complex Dynamic.* $320,025 for April 2006-March 2008.
* Two-year US Civilian Research & Development Foundation Grant for *Laboratory Simulations of Magnetospheric Plasma Shocks and Particle Accelerations*. $7,700 for March 2006-February 2008.
* Three-year National Science Foundation Grant for *Solar Wind Driven Magnetospheric-Ionospheric Complex Dynamic Model.* $424,785 for April 2003-March 2007.
* Three-year National Science Foundation Grant for *Solar Wind Driven Magnetospheric-Ionospheric Complex Dynamic Model.* $424,785 for April 2003-March 2006.
* Two-year Civilian Research and Development Foundation Grant for *Planetary Waves and Nonlinear Solitary Vortical Structures in the Earth’s Ionosphere*. $6,050 for March 2003-February 2005.
* One-year National Science Foundation (via Univ. of Michigan) Grant for *Laser Target Interactions and Space/Solar Physics Simulation Experiments*. (co-investigators, Boris Breizman, and Charles Chiu) $54,000 for January 2003-December 2003.
* Three-year National Science Foundation Grant for *A Low Dimensional Dynamical Model for the Solar Wind Driven Geotail-Ionosphere System*. $350,465 for March 2000-March 2003.
* Four-year National Science Foundation Grant for *Simulation Study of Space Plasma Physics*. $200,588 for July 1999-June 2003.
* Three-year National Science Foundation Grant for *Low-Dimensional Models for Solar Wind Driven Magnetosphere-Ionosphere System*. (co-investigators, T. Tajima and subcontract to Isidoros Doxas at UC Boulder). $90,000 for 2000 and $120,000 for 2001.
* Two-year National Science Foundation Grant for *A low-Dimensional Dynamical Model for the Solar Wind Driven Geotail-Ionosphere System*, (co-investigators T. Tajima, I. Doxas, and J. Cary). $150,000 for 1997-1999.
* Department of Energy, Office of Fusion Science, Collaboration with CEA, Dept Controlled Fusion, Cadarache, France on *Bifurcations to Improved Confinement in High Electron Pressure Gradient Plasmas.* $17,000. for 1998-1999. $9000 for 2000.
* National Science Foundation grant, *Anomalous Transport of Magnetically-Confined Plasma*. $23,510 for July 1987-June 1990.
* National Science Foundation grant, *Simulation Study of Space Plasma Physics*. $140,000 for August 1988-January 1991.
* Supplemental grant to the Institute for Fusion Studies for administration of US-Japan, Joint Institute for Fusion Theory. $149,000 for 1983-1988; $35,000 for 1983-1984, $40,000 for 1984-1985, $27,500 for 1985-1986, $29,500 for 1986-1987, $17,000 for 1987-1988, $17,000 for 1988-1989, $25,000 for 1989-1990.
* Co-investigator in the 1980-present grant for the Institute for Fusion Studies.
* Co-investigator in Task A (Theory) contract with Department of Energy in the Fusion Research Center.
* Co-investigator in contract with the Energy Research and Development Administration for work in theoretical plasma physics, approximately $100,000 for 1977-1978.
* Alfred P. Sloan Foundation Fellowship with research grant award of $20,000 for 1975-77.
* Investigator in contract with Texas Atomic Energy Research Foundation for basic plasma physics research, varying amounts.
* NSF-USDP Grant for theoretical plasma physics. $25,000 for 1969-1972.
* Investigator in contract with the Atomic Energy Commission for theoretical plasma physics, approximately $50,000 for 1969-1974.

###### Publications and Contributions (Refereed)

Hirsch Index for impact of Research: h=38

###### Articles

###### C.W. Horton, Jr., *Coupling of Transverse and Longitudinal Waves at the Upper Hybrid Frequency*, Phys. Fluids 9, 815-816 (1966), <https://doi.org/10.1063/1.1761751>.

###### H.L. Berk, C.W. Horton, M.N. Rosenbluth, and R.N. Sudan, *Plasma Wave Reflection in Slowly Varying Media,* Phys. Fluids 10, 2003-2016 (1967), <https://doi.org/10.1063/1.1762400>.

###### H.L. Berk, C.W. Horton, M.N. Rosenbluth, R.N. Sudan, and D.E. Baldwin,

###### *Nonlocal Reflection in Inhomogeneous Media*, Phys. Fluids 11, 365-371 (1968),

###### <https://doi.org/10.1063/1.1691912>.

###### C.W. Horton, Jr., *Numerical Solution of Plasma Wave Equation for a Linear Confining Potential,* Phys. Fluids 11, 1154-1161 (1968), <https://doi.org/10.1063/1.1692076>.

###### P. Rutherford, M.N. Rosenbluth, W. Horton, E. Frieman, and B. Coppi, *Low-frequency Stability of Axisymmetric Toruses*, Plasma Physics and Controlled Nuclear Fusion Research Vol. I (International Atomic Energy Agency, Vienna, 1969), pp. 367-387, ISSN 0074-1884.

###### H.L. Berk, T.K. Fowler, L.D. Pearlstein, R.J. Post, J.D. Callen, C.W. Horton, and M.N. Rosenbluth, *Criteria for Stabilization of Electrostatic Modes in Mirror-Confined Plasmas,* Plasma Physics and Controlled Nuclear Fusion Research Vol. II, (International Atomic Energy Agency, Vienna, 1969), pp. 151-164,  ISSN 0074-1884.

###### H.L. Berk, L.D. Pearlstein, J.D. Callen, C.W. Horton, and M.N. Rosenbluth, *Destabilization of Negative-energy Waves in Inhomogeneous Mirror Geometry,* Phys. Rev. Lett. 22, 876-879 (1969),

###### <https://doi.org/10.1103/PhysRevLett.22.876>.

###### C.W. Horton, Jr., *Destabilization and Quasilinear Evolution of the Ion Flute Mode,* Phys. Fluids 12, 2132-2139 (1969), <https://doi.org/10.1063/1.1692322>.

###### J.D. Callen and C.W. Horton, *Negative Mass Instabilities*, Phys. Fluids 13, 154-165 (1970), <https://doi.org/10.1063/1.1692784>.

###### F.L. Hinton and C.W. Horton, Jr., *Amplitude Limitation of a Collisional Drift Wave Instability*, Phys. Fluids 14, 116-123 (1971), <https://doi.org/10.1063/1.1693260>.

###### C.W. Horton, Jr., J.D. Callen, and M.N. Rosenbluth, *Microinstabilities in Axisymmetric Mirror Machines*, Phys. Fluids 14, 2019-2032 (1971), <https://doi.org/10.1063/1.1693712>.

###### D.W. Ross and C.W. Horton, Jr., *Radial Dependence on the Collisional Trapped-Particle Instability*, Phys. Rev. Lett. 28, 484-488 (1971), <https://doi.org/10.1103/PhysRevLett.28.484>.

###### C.W. Horton, Jr. and R.K. Varma, *Electrostatic Stability Theory of Tokamaks from Two-Component Fluid Equations,* Phys. Fluids 15, 620-631 (1972), <https://doi.org/10.1063/1.1693957>.

###### Wendell Horton, Jr., *Mechanism for Anomalous Current Penetration*, Phys. Rev. Lett. 28, 1506-1508 (1972), <https://doi.org/10.1103/PhysRevLett.28.1506>.

###### R.K. Varma and C.W. Horton, Jr., *Schrodinger-like Equations for the Nonadiabatic Escape of Charged Particles*, Phys. Fluids 15, 1469-1473 (1972), <https://doi.org/10.1063/1.1694109>.

###### C.S. Liu, M.N. Rosenbluth, and C.W. Horton, Jr., *Electron Temperature Gradient Instability and Anomalous Skin Effect in Tokamaks*, Phys. Rev. Lett. 29, 1489-1492 (1972), <https://doi.org/10.1103/PhysRevLett.29.1489>.

###### J.D. Callen and C.W. Horton, Jr., *Stabilization of the Modified Negative Mass Instability,* Phys. Fluids 15, 2306-2313 (1972), <https://doi.org/10.1063/1.1693874>.

###### Nevel T. Gladd and Wendell Horton, Jr., *Critical Shear and Growth Rates for Drift Waves in a Nonuniform Current-Carrying Plasma,* Phys. Fluids 16, 879-887 (1973), <https://doi.org/10.1063/1.1694440>.

###### W. Horton, Jr. and T. Kammash, *Anomalously-Confined Tokamak Reactor,* Nucl. Fusion 13, 753-755 (1973), <https://doi.org/10.1088/0029-5515/13/5/015>.

###### Lung Cheung and Wendell Horton, Jr., *Equilibrium and Electrostatic Stability Theory of Tokamaks from the Drift-Kinetic Equation,* Ann. Phys. 81, 201-230 (1973), <https://doi.org/10.1016/0003-4916(73)90486-7>.

###### Wendell Horton and Terry Kammash, *Model Tokamak Reactors Limited by Anomalous Diffusion and Synchrotron Radiation,* in *Technology of Controlled Thermonuclear Fusion Experiments and Engineering Aspects of Fusion Reactors*, (U.S. Atomic Energy Commission, Washington, DC 1974), p. 146.

###### Duk-In Choi and Wendell Horton, Jr., *Modified Kadomtsev Spectrum from Renormalized Plasma Turbulence Theory*, Phys. Fluids 17, 2048-2060 (1974), <https://doi.org/10.1063/1.1694664>.

23. L.P. Mai and Wendell Horton, Jr., *Destabilizing Effects of a Fast-Isotropic Ion Component*, Phys. Fluids 18, 356-360 (1975), <https://doi.org/10.1063/1.861130>.

24. D. Biskamp and W. Horton, Jr., *Current Filamentation in Parallel-Field Turbulent Plasmas,* Phys. Rev. Lett. 35, 39-42 (1975), <https://doi.org/10.1103/PhysRevLett.35.39>.

25. H.L. Berk, W. Horton, Jr., M.N. Rosenbluth, and P.H. Rutherford, *Microinstability Theory for Toroidal Plasmas Heated by Intense Energetic Ion Beams,* Proceedings of the 1974 Varenna Symposium on Plasma Heating, (Editrice Compositori, Bologna, 1975), <http://adsabs.harvard.edu/abs/1974phtd.symp..182B>.

26. Duk-In Choi and Wendell Horton, Jr., *Mechanism for Ion Tail Formation during Ion Acoustic Turbulence*, Phys. Fluids 18, 858-860 (1975), <https://doi.org/10.1063/1.861220>.

27. R.A. Koch and Wendell Horton, Jr*., Effects of Electron Angle Scattering in Plasma Waves*, Phys. Fluids 18, 861-865 (1975), <https://doi.org/10.1063/1.861221>.

28. Wendell Horton and Terry Kammash, *Dynamics and Control of Fusion Reactors,* Chapter 8, in *Fusion Reactor Physics* (Ann Arbor Science Publishers, Ann Arbor, MI 1975), p. 203.

29. W. Horton, Jr., D.W. Ross, W.M. Tang, H.L. Berk, E.A. Frieman, R.E. LaQuey, R.V. Lovelace, S.M. Mahajan, M.N. Rosenbluth, and P.H. Rutherford, *Stability Theory of Dissipative Trapped-electron and Trapped-ion Modes*, Plasma Physics and Controlled Nuclear Fusion Research I (International Atomic Energy Agency, Vienna, 1975), pp. 541-548.

30. H.L. Berk, H.P. Furth, D.L. Jassby, R.M. Kulsrud, C.S. Liu, M.N. Rosenbluth, P.H. Rutherford, F.H. Tenney, T. Johnson, J. Killeen, A.A. Mirin, M.E. Rensink, and C.W. Horton, Jr., *Two-energy-component Toroidal Fusion Devices*, Plasma Physics and Controlled Nuclear Fusion Research Vol. III (International Atomic Energy Agency, Vienna, 1975), pp. 569-582.

31. H.L. Berk, W. Horton, Jr., M.N. Rosenbluth, and P.H. Rutherford, *Microinstability Theory of Two-Energy-Component Toroidal Systems*, Nucl. Fusion 15, 819-844 (1975), <https://doi.org/10.1088/0029-5515/15/5/013>.

32. Wendell Horton, Jr., *Drift Wave Stability of Inverted Gradient Profiles in Tokamaks*, Phys. Fluids 19, 711-718 (1976), <https://dx.doi.org/10.1063/1.861517>.

33. W. Horton, Jr., Duk-In Choi, and R.A. Koch, *Ion-acoustic Heating from Renormalized Turbulence Theory*, Phys. Rev. A 14, 424-433 (1976), <https://doi.org/10.1103/PhysRevA.14.424>.

34. L.P. Mai and Wendell Horton, Jr., *Stability of the Ion Cyclotron Wave for Pulsed Parallel Injection*, Phys. Fluids 19, 1242-1252 (1976), <https://doi.org/10.1063/1.861608>.

35. W. Horton, Jr., H. Okuda, C.Z. Cheng, Y.Y. Kuo, W.W. Lee, Y. Matsuda, and M. True, *Correlations Between Drift Wave Theory, Particle Simulations and the Observed Anomalous Transport in Tokamaks*, Plasma Physics and Controlled Nuclear Fusion Research, Vol. II, (International Atomic Energy Agency, Vienna, 1977), pp. 467-479.

36. Wendell Horton, *Spectral Distribution of Drift-Wave Fluctuations in Tokamaks,* Phys. Rev. Lett. 19, 1269-1272 (1976), <https://doi.org/10.1103/PhysRevLett.37.1269>.

37. Duk-In Choi and Wendell Horton, Jr., *Induced Wave Scattering at Low-Phase Velocities,* Phys. Fluids 20, 628-633 (1977), <https://doi.org/10.1063/1.861905>.

38. Wendell Horton, Jr., R. Estes, and Duk-In Choi, *Properties of the Monte Carlo Collision Operator*, Phys. Fluids 20, 1089-1093 (1977), <https://doi.org/10.1063/1.861995>.

39. Wendell Horton, Jr., H. Kwak, R. Estes, and Duk-In Choi, *Initial Value Problem with Non-Hermitian Radial Mode Equations*, Phys. Fluids 20, 1476-1482 (1977), <https://doi.org/10.1063/1.862045>.

40. D.A. Hitchcock, S.H. Brecht, and Wendell Horton, Jr., *Neutral Beam Driven Convective Loss Cone Instability in Toroidal Geometry*, Phys. Fluids 20, 1551-1555 (1977), <https://doi.org/10.1063/1.862055>.

41. S.H. Brecht, D.A. Hitchcock, and W. Horton, Jr., *Parametric Dependence of the Ion Cyclotron Instability in a Two-Energy Component System*, Phys. Fluids 21, 447-460 (1978), <https://doi.org/10.1063/1.862244>.

42. D.A. Hitchcock, S.H. Brecht, and W. Horton, Jr., *An Improved Polynomial Representation for the Delta Function, δ*(*μ-μ0*)*,* J. Comp. Phys. 26, 443-446 (1978), <https://doi.org/10.1016/0021-9991(78)90079-7>.

1. Wendell Horton, Jr., *Entropy Production by Anomalous Drift Wave Transport,* Phys. Lett. A 67, 129-131 (1978), <https://doi.org/10.1016/0375-9601(78)90024-7>.
2. Wendell Horton, Jr., R. Estes, and Duk-In Choi, *Toroidal Mode Coupling Effects on Drift Wave Stability*, Phys. Fluids 21, 1366-1374 (1978), <https://doi.org/10.1063/1.2378>.
3. Duk-In Choi and Wendell Horton, *High Frequency Instability of the Electron Runaway Electron Distribution*, Plasma Phys. 20, 903-920 (1978), <https://doi.org/10.1088/0032-1028/20/9/005>.

46. W. Horton and R.D. Estes, *Anomalous Drift-Wave Transport Analysis of Tokamak Discharges,* Nucl. Fusion 19, 203-222 (1979),

<https://doi.org/10.1088/0029-5515/19/2/005>.

47. W. Horton, Jr., *Drift Mode Stability Analysis* *for the Tandem Mirror*, Nucl. Fusion 20, 2036 (1979), <https://doi.org/10.1088/0029-5515/20/3/008>.

48. W. Horton, Jr., Duk-In Choi, and R.D. Estes, *Diamagnetic Frequency Profile Effects on Toroidal Drift Waves*, Phys. Fluids 22, 519-521 (1979), <https://dx.doi.org/10.1063/1.862617>.

49. W. Horton, *Drift Wave Propagation and Convective Wave Growth in Tokamaks*, Plasma Phys. 21, 455-475 (1979), <https://doi.org/10.1088/0032-1028/21/5/003>.

50. W. Horton, Jr., D-I. Choi, and R.A. Koch, *Scaling Laws and Asymptotic States for Ion Acoustic Turbulence*, Phys. Fluids 22, 797-798 (1979), <https://doi.org/10.1063/1.862631>.

51. W. Horton, Jr. and D-I. Choi, *Renormalized Turbulence Theory for the Ion Acoustic Problem*, Phys. Rep. 49, 273-410 (1979),

[https://doi.org/10.1016/0370-1573(79)90056-5](https://doi.org/10.1016).

52. D. Biskamp and W. Horton, *Wave Action for Drift Waves*, Phys. Lett. A 75, 359-360 (1980), <https://doi.org/10.1016/0375-9601(80)90840-3>.

53. Duk-In Choi and Wendell Horton, *Weakly Localized Two-Dimensional Drift Modes*, Phys. Fluids 23, 356-365 (1980), <https://doi.org/10.1063/1.862980>.

54. Wendell Horton, Duk-In Choi, Paul Terry, and Dieter Biskamp, *Inhibition of the Trapped Ion Mode by Drift Wave Fluctuations*, Phys. Fluids 23, 590-598 (1980),

<https://doi.org/10.1063/1.863008>.

55. Wendell Horton, *Thermodynamic Stability of Anomalous Drift Wave Transport*, Plasma Phys. 22, 345-354 (1980), <https://doi.org/10.1088/0032-1028/22/4/005>.

56. Wendell Horton, *Drift-Mode Stability Analysis for the Tandem Mirror*, Nucl. Fusion 20, 321-337 (1980), <https://doi.org/10.1088/0029-5515/20/3/008>.

57. W. Horton, R.D. Estes, and D. Biskamp, *Fluid Simulations of Ion Pressure Gradient Driven Drift Modes*, Plasma Phys. 22, 663-678 (1980), [https://dx.doi.org/10.1088/0032-1028/22/7/004](http://dx.doi.org/10.1088/0032-1028/22/7/004).

58. F.L. Hinton, R.D. Hazeltine, D.A. Hitchcock, W. Horton, S.M. Mahajan, D.W. Ross, H.R. Strauss, A.A. Ware, and J.W. Wiley, *Relation Between Tokamak Temperature Profiles and Localized Instabilities*, Plasma Physics and Controlled Nuclear Fusion Research (International Atomic Energy Agency, Vienna, 1981), CN-381M-2,

pp. 365-373.

59. J.C. Wiley, Duk-In Choi, and W. Horton, *Simulations of the Runaway Electron Distributions*, Phys. Fluids 23, 2193-2203 (1980), <https://doi.org/10.1063/1.862916.>

60. Wendell Horton and David Brock, *Structure in the Ion Acoustic Spectrum,* Phys. Fluids 24, 509-512 (1981), <https://doi.org/10.1063/1.863398>.

61. G.C. Stey and W. Horton, *A Nonlinear Model for Toroidal Drift Modes Driven by Ion Pressure Gradients*, Phys. Lett. A 81, 268-270 (1981), <https://doi.org/10.1016/0375-9601(81)90712-X>.

62. Wendell Horton, *Anomalous Transport due to Drift-wave Turbulence*, Physica 2D, 107-116 (1981), <https://doi.org/10.1016/0167-2789(81)90064-6>.

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*Planetary Waves and Turbulence in the Ionosphere-Disruptions in GNSS*, ISSI Bern, Switzerland, June 2

*Dust Devils and their role in Weather Dynamics*, ISSI, Bern, Switzerland, June 2, 2014.

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