

**RESUME FOR  
THE COLLEGE OF SCIENCES AND MATHEMATICS**

1. Signature of faculty member (Required only when faculty member is up for promotion or tenure.)

2. **NAME:** Yu Lin Appointment  
  
Academic   X   Annual  
  
**RANK:** Professor Percent  
  
Physics     100  
  
AAES  
  
Other

3. **EDUCATION:**

Doctor of Philosophy, Space Physics, May 1993  
University of Alaska, Fairbanks, AK  
Master of Science, Space Physics, May 1988  
Institute of Geophysics, Chinese Academy of Sciences, China  
Bachelor of Science, Space Physics, June 1985  
Peking University, Beijing, China

4. **EXPERIENCE:**

**A. Major Positions:**

Professor, October 2003 - present  
Assoc. Professor, September 1999 - September 2003  
Asst. Professor, September 1994 - 1999  
Physics Department, Auburn University, Auburn, AL  
  
Research Associate, June 1993 - August 1994  
Geophysical Institute, University of Alaska, Fairbanks  
Research Assistant, June 1988 - May 1993  
Geophysical Institute, University of Alaska, Fairbanks

**B. Assigned Duties:**

i. Allocation of Time:

<u>Activity</u>	<u>Percent</u>
Teaching	<u>    45</u>
Research	<u>    45</u>

**ii. Instructional assignments during last three years:**

Course	Course	Enroll-Quarter		% of Course	Credit	Hours			
		Class	Lab				Number	Title	Taught
Spring 09	PHYS 1600	Engr. Phys. I		100	3	60			
Spring 09	Phys 8970	Plasma Simulation		100	3	2			
Fall 09	Phys 8990	Res. & Dissert'n		100	3	3			
Fall 09	Phys 1510	Gen. Phys. II		100	3	60			
Spring 10	Phys 1510	Gen. Phys. I		100	3	175			
Fall 10	Phys 8990	Res. & Dissert'n		100	3	2			
Fall 10	Phys 1600	Engr. Phys. I		100	3	210			
Spring 11	Phys 8990	Res. & Dissert'n		100	3	1			
Spring 11	Phys 1610	Engr. Phys. II		100	3	140			
Spring 11	Phys 8970	Magnetohydrodynamics		25	3	13			
Spring 11	<i>professional improvement leave</i>								
Fall 11	Phys 8990	Res. & Dissert'n		100	3	1			
Spring 12	Phys 1510	Gen. Phys. II		100	3	142			
Spring 12	Phys 7950	Phys. Colloquium		100	1	27			
Spring 12	Phys 8990	Res. & Dissert'n		100	3	1			
Fall 12	Phys 8990	Res. & Dissert'n		100	2	2			
Fall 12	Phys 1510	Gen. Phys. II		100	3	115			
Spring 13	Phys 8990	Res. & Dissert'n		100	2	1			
Spring 13	Phys 1510	Gen. Phys. II		100	3	120			
Fall 13	Phys 8990	Res. & Dissert'n		100	2	2			
Fall 13	Phys 1510	Gen. Phys. II		100	3	115			
Spring 14	Phys 8990	Res. & Dissert'n		100	2	2			
Spring 14	Phys 5500/6500	Fundamentals. Phys.		100	3	13			
Fall 14	Phys 8930	Directed Studies		100	3	1			
Fall 14	Phys 3100	Intermediate E&M		100	3	18			
Fall 14	Phys 4980	Undergrad Research		100	3	1			
Spring 15	Phys 5500/6500	Fundamentals. Phys.		100	3	14			
Fall 15	Phys 8930	Directed Studies		100	3	1			
Fall 15	Phys 7200	Electricity & Magnetism I		100	3	6			
<b>Spring 16</b>	<b>Phys 7250</b>	<b>Electricity &amp; Magnetism II</b>		<b>100</b>	<b>3</b>	<b>7</b>			
<b>Spring 16</b>	<b>Phys 8990</b>	<b>Res. &amp; Dissert'n</b>		<b>100</b>	<b>3</b>	<b>2</b>			
<b>Fall 16</b>	<b>Phys 7250</b>	<b>Electricity &amp; Magnetism II</b>		<b>100</b>	<b>3</b>	<b>8</b>			
<b>Fall 16</b>	<b>Phys 7200</b>	<b>8990 Res. &amp; Dissert'n</b>		<b>100</b>	<b>3</b>	<b>1</b>			
<b>Fall 16</b>	<b>Phys 5500/6500</b>	<b>Computational Phys.</b>		<b>14</b>	<b>3</b>	<b>7</b>			
<b>Fall 16</b>	<b>Phys 4930</b>	<b>Directed Reading</b>		<b>100</b>	<b>3</b>	<b>1</b>			

**5. SIGNIFICANT HONORS AND AWARDS:**

American Physical Society (APS) Fellow, since 2007.

Society of Women in Science and Mathematics Outstanding Female Faculty Award, Auburn University, 2015.

Alumni Professor, Auburn University, since 2013.

Changjiang Chair Professor, Ministry of Education of China, since 2012.

Katherine E. Weimer Award (inaugural) for outstanding achievement in plasma science research by a woman physicist in early years of her career, American Physical Society (APS) Division of Plasma Physics (DPP), 2002.

Editor's citation for excellence in refereeing for Geophysical Research Letter, 2001.

Office of Naval Research (ONR) Young Investigator Award, May 1995 - May 1999.

NSF CAREER Award, August 1995 - July 2000.

1993 Ed Hones Space Physics Award for the best Ph.D. thesis in space physics, University of Alaska

1991 C.T. Elvey Memorial Award for the best student in the College of Natural Science, University of Alaska

Professional improvement leave, 2001, 2011.

Promoting Research in Sciences and Mathematics (PRISM) Award for Computational Science Cluster, College of Science and Mathematics, Auburn University (*internal award*), 2001.

Outstanding Oversea Young Scientist Award, Chinese National Science Foundation (*international*), 2003-2005, 2006-2008, 2010-2012.

**6. CONTRIBUTIONS:**

**A. Teaching:**

**i. Publications Related to Teaching:**

**iii. Graduate students supervised as major professor:**

<u>Name</u>	<u>Starting Date (mo/yr)</u>	<u>(Projected) Completion Date (mo/yr)</u>	<u>Degree</u>	<u>Current Position</u>
Lei Cheng	8/13	5/18	Ph.D.	
Zhenyu Wang	8/10	8/16	Ph.D.	Postdoc
Feng Shi	8/10	8/14	Ph.D.	Postdoc
Lei Qi	1/11	1/14	Ph.D.	Postdoc

Xiang Lu	9/07	8/11	Ph.D.	Company
Binying Tan	8/04	5/11	Ph.D.	Industry
Hong Xie	9/96	8/01	Ph.D.	Scientist at NASA/GSFC
Qiming Wang	9/98	12/00	M.S.	Unknown

**iv. Postdocs, visiting scholars, and visiting students supervised:**

**Postdoctoral Fellow**

Sam Cable	1996 - 1999
Xueyi Wang	2000 - 2006

**Visiting Scholar**

Naiquan Wang	1996
Xiaoxin Zhang	1996 - 1997
Genxiong Chen	1999 - 2000
Minghua Hong	2005 - 1006
Ye Pang	2009 - 2010
Dehui Li.	2012

**Visiting Graduate Students**

Ye Pang	2007 - 2008
Wei Kong	2008 - 2010
San Lu	2012 - 2013
Ji Liang	2012 - 2014
Sidailuo Lu	2014 - 2014
Xiaotian Gao	2016 - 2017
Huanyu Wang	2016 - 2017
<b>Zhifang Guo</b>	<b>2016</b>
<b>Fucheng Huang</b>	<b>2016 - 2017</b>

**v. Other contributions to teaching:**

Co-I on a NASA Global Climate Change Education (GCCE) grant, 2009. Participated in the development of engaging hands-on inquiry-based science modules for Physics high school science classrooms.

Lectures at the space weather summer camp in UAH, Huntsville (2011) and the MHD international summer school in USTC, China (2011).

Guest professor at the University of Science and Technology of China (USTC), Zhejiang University, Dalian University of Technology, Wuhan University, and the Institute of Plasma Physics (IPP), China since 2000, where I have given lectures, taught a plasma physics course, and supervised 3 Ph.D. students (graduated in 2007, 2009, and 2011) and 2 M.S. students.

## **B. Research:**

### **i. Scholarly Program - Major Research Contributions:**

- (1) Comprehensive theoretical and simulation studies of the nonlinear structure of reconnection layers in the magnetosphere:

From MHD Riemann problem to hybrid simulations, with a paper published in Space Science Reviews in 1993.

- (2) Generation of pressure pulses and MHD discontinuities by interaction of interplanetary discontinuities (shocks) with the bow shock:

Used local and global hybrid simulations to predict and understand the generation of pressure pulses and magnetospheric traveling convection vortices due to variation in the IMF direction.

- (3) Developed 3-D global-scale hybrid simulation models of the magnetosphere, including the dayside global model and the global model that includes both dayside and night side.

- (4) Unique large-scale parallel computations of the kinetic physics in magnetospheric plasma processes:

Used the 3-D global hybrid simulation to address an array of the dayside and night side processes in the interaction between the solar wind and the magnetosphere, including global ion kinetic physics associated with the magnetotail fast flows, magnetic reconnection/FTEs at the magnetopause, foreshock waves and their self-consistent nonlinear interaction with the magnetopause, mode conversion and wave-particle diffusive transport at the magnetopause, and the coupling between the foreshock Fermi-accelerated diffuse ions and the cusp energetic ions.

- (5) Theoretical/computational studies of the fundamental plasma physics:

First fully-kinetic ion particle simulation of mode conversion associated with the kinetic Alfvén waves (KAWs): The 3-D hybrid simulation shows for the first time the generation of KAWs dominated by perpendicular and azimuthal wave vectors when the amplitude of KAWs generated by linear mode conversion becomes large enough to drive a nonlinear parametric decay process. The results are fundamentally important to the transport processes at plasma boundary in space and laboratory plasmas.

Generation of Alfvén and KAWs by ion beam-plasma interaction.

- (6) Developed an innovative gyrokinetic electron and fully-kinetic ion (GeFi) particle simulation scheme for investigation of plasma processes when wave modes from Alfvén to whistler/low-hybrid frequencies need to be handled on an equal footing:

Used the GeFi model to investigate the physics of collisionless magnetic reconnection under a finite guide magnetic field with a realistic ion-to-electron mass ratio.

Used the GeFi model to investigate the nonlinear low-hybrid physics in space and fusion laboratory plasmas.

ii. **Publications:** Refereed

Feng Shi, Lei Cheng, Yu Lin, and Xueyi Wang, Three-dimensional structure of mode conversion at the dayside magnetopause under various IMF conditions, *J. Geophys. Res. Space Phys.*, submitted, 2016.

S. Lu, Y. Lin, V. Angelopoulos, A. V. Artemyev, P. L. Pritchett, Q. Lu, and X. Y. Wang, Hall effect control of magnetotail dawn-dusk asymmetry: A three-dimensional global hybrid simulation, *J. Geophys. Res. Space Physics*, 121, 11,882–11,895, doi:10.1002/2016JA023325, 2016.

J. Liang, Y. Lin, J. R. Johnson, X. Y. Wang, and Z.-X. Wang, Kinetic Alfvén waves in three-dimensional magnetic reconnection, *J. Geophys. Res. Space Phys.*, 121, doi:10.1002/2016JA022505, 2016.

Zhenyu Wang, Yu Lin, Xueyi Wang, Kurt Tummel, and Liu Chen, 3D electrostatic gyrokinetic electron and fully kinetic ion simulation of lower-hybrid drift instability of Harris current sheet, *Phys. Plasmas*, 23, 072104, doi:10.1063/1.4954830, 2016.

Yuheng Huang, NongXiang, Guozhang Jia, Dehui Li, Xueyi Wang, and Yu Lin, Interaction of electrons with two lower hybrid waves, *Phys. Plasmas*, 23, 092114, doi: <http://dx.doi.org/10.1063/1.4963393>, 2016.

G. Jia, N. Xiang, X. Y. Wang, Y. Huang, and Y. Lin, Particle simulations of mode conversion between slow mode and fast mode in lower hybrid range of frequencies, *Physics of Plasmas*, 23, 012504, doi: 10.1063/1.4939604, 2016.

F. Zonca, Y. Lin, and L. Chen, Spontaneous excitation of convective cells by kinetic Alfvén waves, *Europhys. Lett.*, 112, 65001, doi: 10.1209/0295-5075/112/65001, 2016.

San Lu, Quanming Lu, Yu Lin, Xueyi Wang, Yasong Ge, Rongsheng Wang, Meng Zhou, Huisan Fu, Can Huang, Mingyu Wu, and Shui Wang, Dipolarization fronts as earthward propagating flux ropes: A three-dimensional global hybrid simulation, *J. Geophys. Res. Space Phys.*, 120, 6286–6300, doi:10.1002/2015JA021213, 2015.

S. Lu, Y. Lin, Q. Lu, X. Y. Wang, R. Wang, M. Wu, and S. Wang, Evolution of magnetic flux ropes in the magnetotail: A three-dimensional global hybrid simulation, *Phys. Plasmas*, 22, 052901, doi:10.1063/1.4919615, 2015.

Z. Guo, M. Hong, Y. Lin, A. Du, X. Y. Wang, M. Wu, and Q. Lu, Generation of kinetic Alfvén waves in the high-latitude near-Earth magnetotail: A global hybrid simulation, *Phys. Plasmas*, 22, 022117, doi:10.1063/1.4907666, 2015.

Y. Lin, X. Y. Wang, S. Lu, J. D. Perez, and Q. Lu, Investigation of Storm-Time Magnetotail and Ion Injection Using Three-Dimensional Global Hybrid

- Simulation, **J. Geophys. Res. Space Phys.**, 119, 7413–7432, doi:10.1002/2014JA020005, 2014.
- K. Tummel, L. Chen, Z. Wang, X. Y. Wang, and Y. Lin, Gyrokinetic Theory of Electrostatic Lower-Hybrid Drift Instabilities in a Current Sheet with Guide Field, **Phys. Plasmas**, 21, 052104, doi: 10.1063/1.4875720, 2014.
- D. Li, N. Xiang, Y. Lin, X. Y. Wang, C. Yang, and J. Ma, Benchmark Simulations of Gyro-Kinetic Electron and Fully-Kinetic Ion Model for Lower Hybrid Waves in Linear Region, **Plasma Sci. Tech.**, 16, 821, doi: 10.1088/1009-0630/16/9/03, 2014.
- F. Shi, Y. Lin, and X. Y. Wang, Global Hybrid Simulation of Mode Conversion at the Dayside Magnetopause, **J. Geophys. Res. Space Physics**, 118, 6176, doi: 10.1002/jgra.50587, 2013.
- L. Qi, X. Y. Wang, and Y. Lin, Simulation of Linear and Nonlinear Landau Damping of Lower Hybrid Waves, **Phys. Plasmas**, 20, 062107, doi:10.1063/1.4812196, 2013.
- Y. Lin, J. R. Johnson, and X. Y. Wang, Three-Dimensional Mode Conversion Associated with Kinetic Alfvén Waves, **Phys. Rev. Lett.**, 109, 125003, doi: 10.1103/PhysRevLett.109.125003, 2012.
- M. H. Hong, Y. Lin, and X. Y. Wang, Generation of kinetic Alfvén waves by beam-plasma interaction in non-uniform plasma, **Phys. Plasmas**, 19, 072903, doi: 10.1063/1.4736988, 2012.
- Hasegawa, H., H. Zhang, Y. Lin, B. U. Ö. Sonnerup, S. J. Schwartz, B. Lavraud, and Q.-G. Zong, Magnetic Flux Rope Formation within a Magnetosheath Hot Flow Anomaly, **J. Geophys. Res.**, 117 (A9), A09214, doi: 10.1029/2012JA017920, 2012.
- Y. Lin, J. R. Johnson, X. Y. Wang, and Q. M. Lu, Simulation of Mode Conversion at the Magnetopause, **Chinese Science Bulletin**, vol. 57, issue 12, 2012.
- Tan, B., Y. Lin, J. D. Perez, and X. Y. Wang, Global-scale hybrid simulation of cusp precipitating ions associated with magnetopause reconnection under southward IMF, **J. Geophys. Res.**, 117, A03217, doi:10.1029/2011JA016871, 2012.
- X. Y. Wang, Y. Lin, L. Chen, X. Lu, and W. Kong, Investigation of Tearing Instability Using GeFi Particle Simulation Model, **Phys. Plasmas**, 18, 122102, doi: 10.1063/1.3662435, 2011.
- Y. Lin, X. Y. Wang, L. Chen, X. Lu, and W. Kong, Improved Gyrokinetic Electron and Fully Kinetic Ion Particle Simulation Scheme: Benchmark With Linear Tearing Mode, **Plasma Phys. Control. Fusion**, 53, 054013, 2011.
- B. Tan, Y. Lin, J. D. Perez, and X. Y. Wang, Global-scale Hybrid Simulation of Dayside Magnetic Reconnection Under Southward IMF: Structure and Evolution of Reconnection, **J. Geophys. Res.**, 116, A02206, doi:10.1029/2010JA015580, 2011.

Y. Hu, R. E. Denton, and Y. Lin, The effect of heat flux on pressure evolution in the magnetosheath, **JASTP**, 72, 1155, doi:10.1016/j.jastp.2010.07.007, 2010.

Y. Lin, J. R. Johnson, and X. Y. Wang, "Hybrid Simulation of Mode Conversion at the Magnetopause", **Journal of Geophysical Research**, 115, A04208, doi:10.1029/2009JA014524, 2010.

Y. Pang, Y. Lin, X. H. Deng, X. Y. Wang, and B. Tan, "Three-dimensional Hybrid Simulation of Magnetosheath Reconnection Under Northward and Southward Interplanetary Magnetic Field", **Journal of Geophysical Research**, 115, A03203, doi:10.1029/2009JA014415, 2010.

Y. Pang, Y. Lin, and X. H. Deng, Global hybrid simulation of magnetic reconnection in the magnetosheath, International Space Weather Special Issue, *Journal of Space Science*, Chinese Academy of Sciences, 2010.

X. Y. Wang, Y. Lin, and S.-W. Chang, "Hybrid Simulation of Foreshock Waves and Ion Spectra and Their Linkage to Cusp Energetic Ions", **Journal of Geophysical Research**, 114, A06203, doi:10.1029/2008JA013745, 2009.

X. Y. Wang, Y. Lin, L. Chen, and Z. Lin, "Particle Simulation of Current Sheet Instabilities Under Finite Guide Field", **Physics of Plasmas**, 15, 072103, 2008.

P. Yoon, Y. Lin, X. Y. Wang, and A. T. Y. Lui, "Drift instabilities for current sheet equilibrium with guide field", **Physics of Plasmas** 15, 112103, 2008.

Y. Lin, X. Y. Wang, M. R. Brown, M. Schaffer, and C. D. Cothran, "Modeling Swarthmore Spheromak Reconnection Experiment Using Hybrid Code", **Plasma Physics and Controlled Fusion**, 50(7), 074012, 2008.

M. H. Hong, D. W. Swift, and Y. Lin, "Ion Dynamics Associated With Alfvén Waves in the Near-Earth Magnetotail: Two-Dimensional Global Hybrid Simulation", **Advances in Space Research**, 41, 1298-1304, 2008.

S. Cable, Y. Lin, and J. Holloway, "Intermediate MHD Shocks with a Terrestrial Magnetosphere", **Journal of Geophysical Research**, 112, A09202, doi:10.1029/2007JA012419, 2007.

Y. Lin, X. Y. Wang, and S.-W. Chang, "Connection Between Bow Shock and Cusp Energetic Ions", **Geophysical Research Letters**, 34, L11107, doi:10.1029/2007GL030038, 2007.

X. Sun, Y. Lin, and X. Wang, "Reversal of Magnetic Field Rotation in the Reconnection Layer Due to Shear Flow Effects", **Journal of Geophysical Research**, 111, A11210 10.1029/2006JA011812, 2006.

Y. Lin and X. Y. Wang, "Formation of Dayside Low-Latitude Boundary Layer Under Northward Interplanetary Magnetic Field", in **Geophysical Research Letters**, 33, L21104, doi:10.1029/2006GL027736, 2006.

X. Y. Wang and Y. Lin, "Generation of Filamentary Structures by Beam-Plasma Interaction", **Physics of Plasmas**, 13, 052102, 2006.

Y. Lin and X.Y. Wang, "Three-Dimensional Global Hybrid Simulation of Dayside Dynamics Associated with the Quasi-Parallel Bow Shock", **Journal of Geophysical Research**, 110, A12216, doi: 10.1029/2005JA011243, 2005.

Y. Lin and X.Y. Wang, "3-D Hybrid Simulation of Quasi-Parallel Bow Shock and Its Effects on the Magnetosphere", in **The Physics of Collisionless Shocks**, pp. 313-319, edited by Li, G. et al., American Institute of Physics, 2005.

Y. Lin, "Generation of Diamagnetic Cavities at the Bow Shock by Ion Kinetic Effects", in *Astrophysical Particle Acceleration in Geospace and Beyond*, pp. 31-60, edited by Gallagher, D. et al., **AGU Monograph**, 2005.

X.Y. Wang and Y. Lin, "Ion Beam Plasma Interaction and Associated Ion Heating", in *Astrophysical Particle Acceleration in Geospace and Beyond*, pp. 117-124, edited by Gallagher, D. et al., **AGU monograph**, 2005.

Y. Lin, X.Y. Wang, Z. Lin, and L. Chen, "A Gyrokinetic Electron and Fully Kinetic Ion Plasma Simulation Model", **Plasma Physics and Controlled Fusion**, 47, 657, 2005.

X. Sun, Y. Lin, and X. Wang, "Structure of Reconnection Layer with a Shear Flow Perpendicular to the Anti-Parallel Magnetic Field Component", **Physics of Plasmas**, 12, 012305, 2005.

Y. Lin, "Global-Scale Simulation of Foreshock Structures at the Quasi-Parallel Bow Shock", *J. Geophys. Res.*, 108, A11, SMP3, 2003.

X.Y. Wang, and Y. Lin, Generation of Nonlinear Alfvén and Magnetosonic Waves by Beam Plasma Interaction, **Phys. Plasmas**, 10, 3528, 2003.

Y. Lin and D.W. Swift, Generation of Near-Earth Reconnection by Divergent Flows in the Plasma Sheet, *Journal of Geophysical Research*, **Journal of Geophysical Research**, 107 (11), SMP 17-1, 2002.

Y. Lin and X.Y. Wang, Simulation of Ion Velocity distributions in the Magnetosheath, **Geophysical Research Letters**, 29, 32, 2002.

Y. Lin, Global Hybrid Simulation of Hot Flow Anomalies Near the Bow Shock and in the Magnetosheath, **Planetary and Space Science**, 50, 577, 2002.

Y. Lin, Global Hybrid Simulation of the Magnetopause Reconnection Layer and Associated Field-Aligned Currents, **Journal of Geophysical Research**, 106, 25451, 2001.

Y. Lin, R.E. Denton, L.C. Lee, and J.K. Chao, "Two-Dimensional Hybrid Simulation of pressure Evolution and Waves in the Magnetosheath", **Journal of Geophysical Research**, 106, 10691, 2001.

H. Xie and Y. Lin, "Two-Dimensional Hybrid Simulation of the Dayside Reconnection Layer and Associated Ion Transport", **Journal of Geophysical Research**, 105, 139, 2000.

G.X. Chen, Y. Lin, and S. Cable, "Generation of pressure Pulses, Traveling Convection Vortices, and Field-Aligned Currents in the Magnetosphere by Response to Interplanetary Tangential Discontinuity", **Geophysical Research Letters**, 27, 3585, 2000.

X.Y. Wang, C.S. Wu, S. Wang, J.K. Chao, Y. Lin, and P.H. Yoon, "A Source of Energetic Particles Associated with Solar Flares", **APJ**, 2000.

Y. Lin, "Global Hybrid Simulation of the Magnetopause Reconnection Layer and Associated Field-Aligned Currents, **Journal of Geophysical Research**, submitted 2001.

D.W. Swift and Y. Lin, "Substorm Simulation by Use of a Two-Dimensional Global-Scale Hybrid Code, **JASTP**, 63, 683-704, 2001.

Y. Lin and L.C. Lee, "Magnetic Field Rotation and the Transition Width in Rotational Discontinuities and Alfvén Wave Trains, **Journal of Geophysical Research**, 105, 139, 2000.

Y. Lin and L.C. Lee, "Reconnection Layers in Two-Dimensional Magnetohydrodynamics and Comparison with One-Dimensional Riemann Problem, **Physics of Plasmas** 6, 3131, 1999.

S. Cable and Y. Lin, "Three-dimensional MHD Simulations of Interplanetary Rotational Discontinuities Impacting the Bow Shock and Magnetosheath, **Journal of Geophysical Research**, 103, 29, 551, 1998.

S. Cable and Y. Lin, "MHD Simulations of the Oppositely Propagating Alfvén Waves in the Magnetosheath," **Geophysical Research Letters**, 25, 1821, 1998.

Y. Lin and X.X. Zhang, "Structures of the Magnetotail Reconnection Layer in 2-D Ideal MHD", Encounter Between Global Observations and Models in the ISTP Era", p. 275, Edited by Horwitz et.al., AGU, Washington, DC. 1998.

Y. Lin, "Generation of Anomalous Flows Near the Bow Shock by Its Interaction with Interplanetary Discontinuities", **J. Geophys. Res.**, 102, 24, 265, 1997.

Y. Lin and H. Xie, Formation of Reconnection layer at the Dayside Magnetopause, **Geophysical Research Letters**, 24, 3145, 1997.

Y. Lin, D.W. Swift, and L.C. Lee, "Simulation of Pressure Pulses in the Bow Shock and Magnetosheath by Variations in Interplanetary Magnetic Field Direction, **J. Geophys. Res.**, 101, 27, 251, 1996.

Y. Lin and D.W. Swift, "A Two-Dimensional Hybrid Simulation of the Magnetotail Reconnection", **J. Geophys. Res.** 101, 19, 859, 1996.

Y. Lin, L.C. Lee and M. Yan, "Generation of Dynamic Pressure Pulses in the Magnetosheath by the Variation of IMF Orientation, **J. Geophys. Res.**,

101, 479, 1996.

L.C. Lee, Y. Lin and G.S. Choe, "Generation of Rotational Discontinuities by Magnetic Reconnection Associated with Microflares," **Solar Physics**, 163, 335, 1995.

Y. Lin, "Structure of Reconnection Layers at the Magnetopause and in the Magnetotail," **AGU Monograph**, 1995.

Y. Lin and L.C. Lee, "A Simulation Study of the Riemann Problem Associated with the Magnetotail Reconnection," **J. Geophys. Res.**, 100, 19 227, 1995.

Y. Lin, and L.C. Lee, "Formation of the Magnetopause Boundary Layer by Magnetic Reconnection," **Adv. Space Res.** 15, 1995.

B.H. Wu, J.K. Chao, W.H. Tsai, Y. Lin, and L.C. Lee, "A Hybrid Simulation of Contact Discontinuity," **Geophys. Res. Lett.**, 2059, 1994.

Y. Lin and L.C. Lee, "Reconnection Layer at the Flank Magnetopause in the Presence of Shear Flow," **Geophysical Res. Lett.**, 21, 885, 1994.

Y. Lin and L.C. Lee, "Generation of Region 1 and Mantle Field-Aligned Currents by the Secondary Rotational Discontinuity," in **AGU Monograph on Solar Wind Sources of Magnetospheric ULF Waves**, M. Engerbreton and K. Takahashi, eds. AGU, Washington, DC pp. 213-221, 1994.

J.G. Hawkins, L.C. Lee, M. Yan, Y. Lin, F.W. Perkins, and M. Yamada, "A Mechanism to Procude a Dawn-Dusk Component of Plasma Flow During Magnetic econnection in the Magnetotail," **Journal of Geophysical Reserach**, 1993.

Y. Lin and L.C. Lee, "Structure of Reconnection Layers in the Magnetosphere," **Space Science Reviews**, pp. 59-179, 1994.

Y. Lin and L.C. Lee, "Structure of the Dayside Reconnection Layer in Resistive MHD and Hybrid Models," **Journal of Geophysical Research**, 98, 3919, 1993.

L.C. Lee and Y. Lin, "Chaotic Ion Motion in Slow Shocks," in the **Proceedings of International Topical Conference on Research Trends in Nonlinear Space Plasma Physics**, ed. by R.Z. Sagdeev et al., pp. 104-139, American Institute of Physics, 1993.

Y. Lin and L.C. Lee, "Chaotic Ion Orbits in a Coherent Electromagnetic Wave," in the **Physics of Space Plasmas (1991)**, *SPI Conference Proceedings Reprint and Preprint Series, volumn 11*, pp. 431-441, T. Chang, G.B. Crew and J.P. Jasperse, eds. (scientific Publishers Inc., Cambridge, MA 1992).

Y. Lin, L.C. Lee and C.F. Kennel, "The Role of Intermediate Shocks in Magnetic Reconnection," **Geophysical Research Letters**, 19, 229, 1992.

Y. Lin and L.C. Lee, "Chaos and Ion Heating in a Slow Shock," **Geophysical Research Letters**, 18, 1615, 1991.

L.C. Lee, Y. Lin, Y. Shi, and B.T. Tsurutani, "Slow Shock Characteristics as a Function of Distance from the X-Line in the Magnetotail," **Geophysical Research Letters**, 16, 903, 1989.

Y. Lin and K.K. Tschu, "An Analysis of Kelvin-Helmholtz Instability in the Low-Latitude Magnetopause-Boundary Layer Region," **Planetary and Space Sciences**, 36, 687, 1988.

C.Y. Tu and Y. Lin, "Energy Cascading Theory of Alfvén Fluctuations in the Solar Wind Between 1 AU and 5AU", **Journal of Space Science**, Academia Sinica, 5, 125, 1985.

Nonrefereed

L.C. Lee and Y. Lin, "A Hybrid Simulation of Magnetopause," in the *Proceedings of the Cornelius Lanczos International Centenary Conference*, p. 467, 1994.

iii. Papers Presented:

Gyrokinetic Electron and Fully Kinetic Ion Simulation of Fast Magnetosonic Waves in the Magnetosphere, presented at the Fall AGU Meeting, December 2016, San Francisco, CA.

Secondary Instabilities in 3-D Magnetic Reconnection, presented at the Fall AGU Meeting, December 2016, San Francisco, CA.

Kinetic Alfvén Waves in 3-D Magnetic Reconnection, presented at the Fall AGU Meeting, December 2016, San Francisco, CA.

Global Hybrid Simulation of the Magnetotail under Various IMF Directions, presented at the GEM Mimi Workshop, December, 2016, San Francisco, CA.

Structure of Kinetic Alfvén Waves in Magnetic Reconnection, presented at the GEM Mimi Workshop, December, 2016, San Francisco, CA.

Generation of Kinetic Alfvén Waves at the Dayside Magnetopause, presented at the GEM Mimi Workshop, December, 2016, San Francisco, CA.

Kinetic Alfvén Waves in 3-D Magnetic Reconnection, presented at the APS-DPP Meeting, October 2016, San Jose, CA.

3-D Electromagnetic Instabilities in Current Sheet, presented at the APS-DPP Meeting, October 2016, San Jose, CA.

Invited Seminar: Global Hybrid Simulation of Magnetospheric Plasma Processes, presented at Rice University, October 2016, Houston, TX.

Invited talk: Hybrid Simulation on Transport Processes in the Magnetosphere Associated with Kinetic Alfvén Waves, presented at the ICPP conference, June

2016, Kaohsiung, Taiwan.

**Invited talk: 3D magnetic reconnection under a finite guide field, presented at the 10<sup>th</sup> West Lake International Symposium on Magnetic Fusion, May 2016, Hangzhou, China.**

**Invited talk: 3D magnetic reconnection under a finite guide field, presented at the US-Japan Magnetic Reconnection workshop, March 2016, Napa Valley, San Francisco.**

Fast Flows and Entropy Evolution in Global Hybrid Simulation, presented at the Fall AGU Meeting, December 2015, San Francisco, CA.

Simulation of 3-D Magnetic Reconnection by Gyrokinetic Electron and Fully Kinetic Ion Particle Model, presented at the Fall AGU Meeting, December 2015, San Francisco, CA.

Dipolarization fronts as earthward propagating flux ropes: A three-dimensional global hybrid simulation, presented at the Fall AGU Meeting, December 2015, San Francisco, CA.

Simulation and Theoretical Study of Spontaneous excitation of convective cells by kinetic Alfvén waves, presented at the APS-DPP Meeting, November 2015, Savanna, LA.

3-D Particle Simulation of Current Sheet Instabilities, presented at the APS-DPP Meeting, November 2015, Savanna, LA.

Interactions of electrons with multiple lower hybrid waves, presented at the APS-DPP Meeting, November 2015, Savanna, LA.

**Invited Talk: Investigation of Storm-Time Magnetotail Using 3-D Global Hybrid Simulation, presented at the 2015 AGU Chapman Conference on Magnetospheric Dynamics, September 2015, Fairbanks, Alaska.**

Global Hybrid Simulation of Magnetotail Reconnection, presented at the GEM Workshop, NSF, June 2015, Snowmass, Co.

Investigation of the Magnetotail and Inner Magnetosphere with Combined Global Hybrid and CIMI Models, presented at the Fall AGU Meeting, December 2014, San Francisco, CA.

Investigation of Magnetic Reconnection by Gyrokinetic Electron and Fully Kinetic Particle Simulation, presented at the Fall AGU Meeting, December 2014, San Francisco, CA.

Evolution of magnetic flux ropes in the magnetotail: A three-dimensional global hybrid simulation, presented at the Fall AGU Meeting, December 2014, San Francisco, CA.

Laboratory Observations Consistent with Nonlinear Decay of a Kinetic Alfvén Wave, presented at the Fall AGU Meeting, December 2014, San Francisco, CA.

Kinetic Alfvén Waves at the Magnetopause, presented at the GEM Mimi Workshop, December, 2014, San Francisco, CA.

Hybrid Simulation of Kinetic Alfvén Waves in 3-D Magnetic Reconnection, presented at the APS-DPP Meeting, October 2014, New Orleans, LA.

Investigation of Storm-Time Magnetotail and Ion Injection Using 3-D Global Hybrid Simulation, presented at the APS-DPP Meeting, October 2014, New Orleans, LA.

3-D Gyrokinetic Electron and Fully Kinetic Ion Simulation of Current Sheet Instability, presented at the APS-DPP Meeting, October 2014, New Orleans, LA.

Simulation of Mode Conversion of Lower Hybrid Waves, presented at the APS-DPP Meeting, October 2014, New Orleans, LA.

3-D Global Hybrid Simulation of the Storm-Time Magnetotail and Ion Injection, presented at the Fall AGU Meeting, December 2013, San Francisco.

A 3-D Global Hybrid Model of the Magnetosphere, presented at the Fall AGU Meeting, December 2013, San Francisco.

Structure of Mode Conversion at the Magnetopause Under Various IMF Conditions, presented at the Fall AGU Meeting, December 2013, San Francisco.

Simulation of Ion Diffusion in Kinetic Alfvén Waves, presented at the APS-DPP Meeting, November 2013, Denver, Co.

Gyrokinetic Electron and Fully Kinetic Ion (GeFi) Particle Simulation of Electron-Ion Hybrid Instability, presented at the APS-DPP Meeting, November 2013, Denver, Co.

Invited Talk: Hybrid Simulation of Wave Mode Conversion at the Magnetopause, presented at the, August 2013, Merida, Mexico.

Invited Talk: Three-Dimensional Global Hybrid Simulation of Magnetospheric Plasma Processes, presented at the International Association of Geomagnetism and Aeronomy (IAGA) meeting, July 2013, Chiba, Japan.

Invited Talk: Simulations of the Magnetopause Transport due to Wave Mode Conversion, presented at the THEMIS Science Working Group Meeting, March 2013, Fairbanks, Alaska.

Ion Diffusion in Mode Conversion at the Magnetopause, presented at the Fall AGU Meeting, December 2012, San Francisco.

3-D Global Hybrid Simulation of Magnetotail Dynamics Associated with Substorms, presented at the Fall AGU Meeting, December 2012, San Francisco.

3-D Mode Conversion Associated With Kinetic Alfvén Waves, presented at the APS-DPP Meeting, November 2012, Providence.

Invited Talk: Investigation of Ultra Low Frequency (ULF) Waves in the Magnetosphere, presented at the Symposium on Plasma Theory, January 2012, Irvine, California.

Invited Talk: Simulation of the Magnetosphere Using Global Hybrid Model, presented at the Space Weather Summer Camp, September 2011, Huntsville, Alabama.

Invited Talk: 3-D Global Hybrid Simulation of Plasma Processes in the Bow Shock and Dayside Magnetosphere, presented at the International Conference on Storms, Substorms, and Space Weather (ICSSSW), September 2011, Hangzhou, China.

Invited Talk: Hybrid Simulation of Mode Conversion at the Magnetopause, presented at the 2011 Cross-Strait Symposium on the Fusion Energy and Plasma Science, July 2011, Chungli, Taiwan.

Keynote Speech: Simulation of Mode Conversion, presented at the Workshop on Basic Plasma Processes in Solar-Terrestrial Activities, June 2011, Luoyang, China.

Invited Seminar: Global Hybrid Simulation of Interaction Between the Solar Wind and the Magnetosphere, presented at the Space Science Lab, UC Berkeley, March 2011, Berkeley, California.

Invited Seminar: Global Hybrid Simulation of Physics Processes in the Magnetosphere, presented at the Department of Physics and Astronomy, UC Irvine, March 2011, Irvine, California.

Invited Talk: Investigation of Magnetic Reconnection Using Gyrokinetic Electron and Fully Kinetic Ion Particle Simulation Model, presented at the Conference of Earth-Sun System Exploration (ESSE): Variability of Space Plasma Phenomena, January 2011, Kona, Hawaii.

3-D Hybrid Simulation of Mode Conversion at the Magnetopause, presented at the Fall AGU Meeting, December 2010, San Francisco.

Global-Scale Hybrid Simulation of the Magnetopause Reconnection, presented at the Fall AGU Meeting, December 2010, San Francisco.

3-D Hybrid Simulation of Reconnection Layer, presented at the Fall AGU Meeting, December 2010, San Francisco.

Global Hybrid Simulation of Magnetic Reconnection at the Magnetopause, presented at the Western Pacific Geophysics Meeting (WPGM), June 2010, Taipei, Taiwan.

Invited Talk: Investigation of Magnetic Reconnection Using Gyrokinetic Electron and Fully Kinetic Ion Particle Simulation Model, presented at the Theory of Fusion Plasmas – Joint Varenna-Lausanne International Workshop, August 2010, Varenna, Italy.

Invited Talk: Mode Conversion at the Magnetopause Boundary, presented at the mini-GEM Workshop December 2009, San Francisco, CA.

Simulation of Mode Conversion, presented at the APS-DPP Meeting, November 2009, Atlanta, GA.

Global Simulation of the Bow Shock Waves and Cusp Energetic Ions, presented at the APS-DPP Meeting, November 2009, Atlanta, GA.

Hybrid Simulation of Mode Conversion at the Magnetopause, presented at the Fall AGU Meeting, December 2009, San Francisco.

3-D Hybrid Simulation of the Magnetopause Reconnection and Associated Cusp Precipitating Ions, presented at the Fall AGU Meeting, December 2009, San Francisco.

3-D Hybrid Simulation of the Bow Shock and Cusp Waves and Their Effects on Cusp Energetic Ions, presented at the Fall AGU Meeting, December 2009, San Francisco.

Heavy Ion Effects on Magnetopause Transport? presented at the Fall AGU Meeting, December 2009, San Francisco.

Invited Talk: Simulation of the Cusp Precipitating Ions Associated With Magnetopause Reconnection, presented at the Second Cross-Strait Plasma Science Meeting, August 2009, Dunhuang, China.

Gyrokinetic-Electron and Fully Kinetic-Ion Particle Simulation of Current Sheet Instabilities, presented at the Geospace Environment Modeling (GEM) meeting, June 2008, Salt Lake City.

Simulation of Current Sheet Instabilities Using Gyrokinetic Electron and Fully Kinetic Ion Particle Code, presented at the Fall AGU Meeting, December 2008, San Francisco.

3-D Hybrid simulation of Magnetosheath Reconnection Due to interaction between Interplanetary tangential discontinuity and the magnetosphere, presented at the Fall AGU Meeting, December 2008, San Francisco.

GKE/FKI Simulation of Current Sheet Instabilities Under a Finite Guide Field, presented at the APS-DPP Meeting, November 2008, Dallas, TX.

Modeling Swarthmore Spheromak Reconnection Experiment Using Hybrid Code, presented at the APS-DPP Meeting, November 2008, Dallas, TX.

Invited Talk: 3D Global Global Hybrid Simulations of the Interaction of Solar wind With the Magnetospheric Boundaries, presented at the 2008 Huntsville Workshop on the Physical Processes for Energy and Plasma Transport Across Magnetic Boundaries, October 2008, Huntsville, AL.

Hybrid Simulation of Mode Conversion at the Magnetopause, presented at the Fall AGU Meeting, December 2007, San Francisco.

A GKE/FKI Particle Simulation of Current Sheet Instabilities With Finite Guide Field and Comparison with Theory, presented at the Fall AGU Meeting, December 2007, San Francisco.

3D Global Hybrid Simulation of Flux Transfer Events at the Dayside Magnetopause, presented at the Fall AGU Meeting, December 2007, San Francisco.

Investigation of Current Sheet Instabilities Using a GKE/FKI Particle Simulation Model, presented at the APS-DPP Meeting, November 2007, Orlando, FL.

Invited Talk: 3D Global Hybrid Simulation of the Bow Shock and Its Interaction With the Magnetosphere, presented at the First Asian-Pacific Symposium on Astrophysical, Space and Laboratory Plasmas, June 2007, Beijing, China.

Invited Talk: 3-D Global Hybrid Simulation of Plasma Processes in the Dayside Magnetosphere, presented at the ISSS-07 Conference, February 2007, Kauai, Hawaii.

Anisotropic Pressure Evolution, presented at the Fall AGU Meeting, December 2006, San Francisco, CA.

Observational Constraints on Theoretical Models of Plasma Entry for Northward IMF, presented at the Fall AGU Meeting, December 2006, San Francisco, CA.

Intermediate Bow Shock and Magnetic Reconnection in the Atmosphere, presented at the Fall AGU Meeting, December 2006, San Francisco, CA.

Hybrid Simulation of the Formation of Dayside Low-Latitude Boundary Layer Under Northward IMF, presented at the Fall AGU Meeting, December 2006, San Francisco, CA.

Invited Talk: simulation of Physical Processes at the Magnetopause, presented at the mini-GEM Workshop December 2006, San Francisco, CA.

Global Signatures of Ion Acceleration near the Quasi-Parallel Bow Shock, presented at the APS-DPP Meeting, October 2006, Philadelphia, PA.

Current Status of the Gyrokinetic-Electron and Fully-Kinetic Ion Particle Simulation Model, presented at the APS-DPP Meeting, October 2006, Philadelphia, PA.

Plenary Talk: Investigation of Kinetic Physics of the Magnetosphere Using Global Simulation, presented at the International Conference on Physics Education and Frontier Research (the 7<sup>th</sup> Meeting of Overseas Chinese Physicists Association), June 2006, Taipei, Taiwan.

Invited Talk: Plasma Heating and Transport at the Magnetopause due to Nonlinear Interaction with kinetic ULF Waves MHD Disturbances, presented at the Fall AGU Meeting, December 2005, San Francisco.

The MHD Intermediate Wave Magnetosheath as Affected by Solar Wind MHD Disturbances and Magnetospheric Reconnection, presented at the Fall AGU Meeting, December 2005, San Francisco.

Investigation of the Cusp Energetic Ions Using a Global Hybrid Simulation, presented at the Fall AGU Meeting, December 2005, San Francisco.

Three-Dimensional Global Hybrid Simulation of Dayside Dynamics Associated with the Quasi-Parallel Bow Shock, presented at the Fall AGU Meeting, December 2005, San Francisco.

Physics Mechanism for the Generation of Filaments and Alfvén Waves by Ion Beam-Plasma Interaction presented at the APS-DPP Meeting, November 2005, Denver, CO.

Global Hybrid Simulation of the Interaction Between Foreshock Waves and the Dayside Magnetosphere, presented at the APS-DPP Meeting, November 2005, Denver, CO.

Simulation Code Using Gyrokinetic-Electron and Fully-Kinetic Ions, presented at the Joint Meeting of the 19<sup>th</sup> International Conference on Numerical Simulation of Plasmas and 7<sup>th</sup> Asia Pacific Plasma Theory Conference, July 2005, Nara, Japan.

A Gyrokinetic-Electron and Fully-Kinetic Ion Simulation Model, presented at the 2005 International Sherwood Fusion Theory Conference, April 2005, Lake Tahoe.

Invited Talk: Numerical Study of Global Structure and Dynamics of the Collisionless Bow Shock, presented at the 4<sup>th</sup> Annual International Astrophysics Conference addressing The Physics of Collisionless Shocks, February 2005, Palm Spring, CA.

A Gyrokinetic-Electron and Fully-Kinetic Ion Simulation Model, to be presented at the 2005 International Sherwood Fusion Theory Conference, April 2005, Lake Tahoe.

3-D Global Hybrid Simulation of the Bow Shock and Magnetopause Reconnection, presented at the APS-DPP Meeting, November 2004, Savannah, GA.

Development of A Gyrokinetic-Electron and Fully-Kinetic Ion Simulation Code, presented at the Fall AGU Meeting, December 2004, San Francisco.

Invited Talk: Ion Beam-Plasma Interaction and Application at the Quasi-Parallel Bow Shock, presented at the 6<sup>th</sup> Meeting of Overseas Chinese Physicist Association, June 2004, Shanghai, China.

Gyrokinetic-Electron and Fully-Kinetic Ion Particle Simulation - A Novel Numerical Model, presented at the APS-DPP meeting, October 2003, Albuquerque, NM.

Gyrokinetic-Electron and Fully-Kinetic Ion Particle Simulation of Collisionless Plasma Dynamics, presented at the Fall AGU Meeting, December 2003, San Francisco, CA.

Three-Dimensional Global Hybrid Simulation of the Bow Shock, presented at the Fall AGU Meeting, December 2003, San Francisco.

Global Hybrid Simulation of the Physical Processes at the Bow Shock, to be presented at the International Conference on The Magnetospheric Response to the Solar Activity, September 2003, Prague, Czech Republic.

Generation of Alfvén Waves by Beam-Plasma Interaction and the Associated Ion Heating presented at the Fall AGU meeting, December 2002, San Francisco.

Global Hybrid Simulation of Quasi-Parallel Bow Shock and Foreschock Structures, presented at the the Fall AGU meeting, December 2002, San Francisco.

Invited Talk for K.E. Weimer Award: MHD Discontinuities in the Dynamics of Collisionless Space Plasmas, presented at the APS-DPP meeting, November 2002, Orlando.

Invited Talk: Global Hybrid Simulation of the Bow Shock and the Generation of Hot Flow Anomalies, presented at the 2002 Huntsville Workshop on "Astrophysical Particle Acceleration in Geospace and Beyond, October 2002, Chattanooga.

Beam-Plasma Interaction and Associated Ion Heating, presented at the 2002 Huntsville Workshop on "Astrophysical Particle Acceleration in Geospace and Beyond, October 2002, Chattanooga.

Global Hybrid Simulation of the Magnetopause Boundary Layer in Low- and High-Latitude Magnetic Reconnections, presented at the Fall AGU meeting, December 2001, San Francisco, CA.

Generation of Near-Earth Reconnection by Divergent Flows in the Plasma Sheet, presented at the Fall AGU meeting, December 2001, San Francisco, CA.

Invited Talk: Hybrid Simulation of the Low- and High-Latitude Reconnection Layers, presented at the APS DPP meeting, October 2001, Long Beach, CA.

Global Hybrid Simulation of the Reconnection Layer, presented at the US-Japan Mini-Workshop on Magnetic Reconnection, May 2001, PPPL, Princeton.

Interaction of Interplanetary Discontinuities with the Bow Shock and Magnetosphere, presented at the Chapman Conference on the Low-Latitude Boundary Layer and Its Dynamic Interaction with the Solar Wind and Magnetosphere, April 2001, New Orleans, LA.

Global Hybrid Simulation of the Generation of Hot Flow Anomalies and Their Effects on the Magnetosphere, presented at the Fall AGU Meeting, December 2000, San Francisco, CA.

Hybrid Simulation of Shear Flow Effects on the Magnetopause Reconnection Layer and Associated Ion Velocity Distributions, to be presented at the Spring AGU Meeting, June 2000, Washington, DC.

Invited Talk: Multi-Dimensional Hybrid Simulations of Shear Flow Effects on the Magnetopause Reconnection Layer and Associated Ion Velocity Distributions, to be presented at the Fourth Joint Meeting of the Chinese Physical Societies, August 2000, Hong Kong, China.

Invited Talk: Global MHD and Hybrid Simulations of the Dayside Transients, to be presented at the Intercomparative Magnetosheath Studies, A Symposium in Honour of Prof. John Spreiter, September 2000, Antalya, Turkey.

Simulation of the Near-Earth Plasma Sheet and Associated Ion Dynamics in Substorm Events, presented at the Fall AGU Meeting, December 1999, San Francisco.

Pressure Evolution in the Magnetosheath, presented at the Fall AGU Meeting, December 1999, San Francisco.

Generation of Pressure Pulses, Traveling Convection Vortices, and Field-Aligned Currents in the Magnetosphere by Response to Interplanetary Tangential Discontinuity, presented at the Fall AGU Meeting, December 1999.

Two-Dimensional Hybrid Simulation of the Shear Flow Effects on the Magnetopause Reconnection, presented at the Fall AGU Meeting, December 1999, San Francisco.

Invited Talk: Interaction of Interplanetary Shocks and Discontinuities with the Earth's Bow Shock, presented at the First General Assembly of Asian Plasma and Fusion Association Joint with the Third Asian Pacific Plasma Theory Conference, September 1998, Beijing, China.

Dynamics of Near-Earth Plasma Sheet Associated with Substorms and its Coupling to the Ionosphere, presented at the Fall AGU Meeting, December 1998, San Francisco.

Hybrid Code Simulation of Substorm Events, presented at the Fall AGU Meeting, December 1998, San Francisco.

Magnetic Reconnection and Particle Precipitation Across the Magnetopause, presented at the Fall AGU Meeting, December 1998, San Francisco.

Effects of Interplanetary Rotational Discontinuities on the Magnetosheath and Magnetosphere, presented at the Fall AGU Meeting, December 1998, San Francisco.

MHD Simulations of Oppositely Propagating Alfvén Waves in the Magnetosheath, presented at the Spring AGU meeting, Boston, MA, May 1998.

2-D Hybrid Simulation of Reconnection Layer and Particle Transport at the Dayside Magnetopause, presented at the Fall AGU meeting, San Francisco, CA, December, 1997.

Generation of Anomalous Flows Near the Bow Shock by its Interaction with Interplanetary Discontinuities, presented at the Fall AGU Meeting, San Francisco, CA, December, 1997

Interaction of Interplanetary Discontinuities with the Earth's Bow Shock, presented at the Second Joint Meeting of the Chinese Physical Societies, August 1997, Taipei, Taiwan. Invited.

Invited talk: Structure of Reconnection Layers at the Dayside and Flank magnetopause, presented at the 8th IAGA Scientific Assembly, August, 1997, Uppsala, Sweden.

Simulation of Pressure Pulses in the Bow Shock and Magnetosheath Driven by Variations in IMF Direction, presented at the AGU Fall Meeting, Dec. 1996, San Francisco.

Structure of Reconnection Layer in 2-D Ideal Resistive MHD Models, presented at the 1996 Huntsville Workshop, Sept., 1996, Guntersville, AL.

Invited talk: Magnetic Field and Plasma Signatures in Magnetospheric Boundary Layers Associated with Magnetic Reconnection, presented at the 1996 Huntsville Workshop, Sept. 1996, Guntersville AL.

Simulation of Pressure Pulses in the Bow Shock and Magnetosheath Driven by Variations in Interplanetary Magnetic Field Direction presented at the First Alfvén Conference on Low-Altitude Investigation of Dayside.

Invited Talk: Magnetospheric Boundary Layer Processes, Sept. 1996, Kiruna, Sweden.

Generation of Dynamic Pressure Pulses Downstream of the Bow Shock by Variation in the IMF Orientation, presented at the GEM Workshop, June 1995, Snowmass, CO.

A Simulation Study of the Reconnection Layer in the Magnetotail, Presented at the American Union Fall Meeting, December 1995, San Francisco, CA.

Formation of Boundary Layer by Magnetic Reconnection at the Magnetopause, presented at the Chapman Conference on Physics of the Magnetopause, March 1994, San Diego, CA.

Generation of Dynamic Pressure Pulses in the Magnetosheath by Variation of the IMF Orientation, presented at the American Geophysical Union Fall Meeting, December 1994.

Evolution of Thin Current Sheets in the Magnetotail, presented at the 2nd International Conference on Substorms, March 1994, Fairbanks, AK.

Formation of Rotational Discontinuities, Intermediate Shocks, and Slow Shocks by Magnetic Reconnection at the Magnetopause, presented at the 30th COSPAR meeting, July 1994, Hamburg, Germany.

Invited Talk: Structure of the Reconnection Layer at the Earth's Magnetopause, presented at the 1993 Magnetopause Workshop, September 1993, Fairbanks, AK.

Magnetic Field Structure and Particle Distribution in the Dayside Boundary Layer, presented at the GEM Workshop, June 1993, Snowmass, CO.

Structure of the Dayside Reconnection Layer in Resistive MHD and

Hybrid Models, presented at American Geophysical Union Fall Meeting, December 1992, San Francisco, CA.

A Mechanism for the Generation of Cusp Field-Aligned Currents, presented at the Chapman Conference on Solar Wind Sources of Magnetospheric ULF Waves, September 1992, Virginia.

Perpendicular Component of Plasma Acceleration During Magnetic Reconnection presented at the American Geophysical Union Fall Meeting, December 1991, San Francisco, CA.

The Role of Intermediate Shocks in Magnetic Reconnection, presented at the American Geophysical Union Fall Meeting, December 1991, San Francisco, CA.

Chaotic Ion Orbits in an Electromagnetic Wave, presented at the 1991 Cambridge Workshop on Theoretical Geoplasma Physics, Massachusetts Institute of Technology, June 1991, Boston, MA.

Invited Talk: Ion Heating and Chaotic Particle Orbits in Slow Shocks, presented at International Topical Conference on Research Trends in Nonlinear Space Plasma Physics, February 1991, La Jolla, CA.

Generation of PC1 Waves by Sudden Impulses, presented at American Geophysical Union Fall Meeting, December 1990, San Francisco, CA.

An Ion Heating Mechanism of Slow Shocks, presented at the American Geophysical Union Fall Meeting, December 1990, San Francisco, CA

Slow Shock Characteristics as a Function of Distance from the X-line in the Magnetotail, presented at the American Geophysical Union Fall Meeting, December 1989, San Francisco, CA.

In addition, more than 40 invited seminars/colloquiums in the US, mainland China, and Taiwan.

Colloquium: 3-D Hybrid Simulation of Magnetospheric Plasma Processes, given at the Physics Department, Univ. of South Alabama, Sept. 2013.

Presentation to SPS, Auburn University: Numerical Simulation of the Magnetosphere.

iv. Grant/Contract Proposals:

External Support:

<u>Title</u>	<u>Source</u>	<u>Grant Joint w/( )</u>	<u>Period and Budget</u>
GEM: Mode Conversion and Kinetic Alfvén Waves at the Magnetopause and Their Effects in the Magnetosphere, NSF, 6/1/2014-5/31/2018, \$436k, funded. (PI: Yu Lin, Co-I: Xueyi Wang, J. R. Johnson, C. C. Chaston, and S. Wing)			
A Simulation Study of Mode Conversion Associated With Kinetic Alfvén Waves, DoE (DoE-NSF program), 8/15/2013-8/14/2017, \$400k, funded. (PI: Yu Lin, Co-I: Xueyi Wang)			
The Role of Entropy in the Plasma Transport from the Magnetotail to the Inner Magnetosphere, NASA, 5/1/13 - 4/30/17, \$72,500 for Yu Lin, funded, subcontract from APL. (PI: Simon Wing at APL, Co-I: Yu Lin at AU and Jay Johnson at PPPL)			
3-D Global Hybrid Simulation of Dayside Reconnection at the Magnetopause and in the Magnetosheath, NASA, 5/15/10 - 5/14/13, \$250,000, funded. (PI)			
Gyrokinetic Electron and Fully Kinetic Ion Particle Simulation of Collisionless Reconnection, NSF-PHYS, 8/15/09 - 8/14/13, \$400,000, funded. (PI)			
3-D hybrid simulation of the Magnetopause Reconnection, NASA, 10/1/2009 - 9/30/2013, \$50,000, funded. (Co-I)			
A 3-D Global Hybrid Simulation Study of the Bow Shock and Its Interaction With the Dayside Magnetosphere, NSF, 11/1/07 - 10/31/10, \$250,000, funded. (PI)			
Global Climate Change Education, NASA, 2009 - 2012, \$50,000, funded. (Co-I)			
Theory and Hybrid Simulation of Transport Due to Kinetic Alfvén Waves at the Magnetopause, NASA, 8/1/06 - 7/31/09, \$90,000, funded. (Co-I)			
Wave Evolution and Ion Heating Processes in Beam-Plasma Experiments, DOE, 8/1/07 - 7/31/10, \$50,000, funded. (Co-I)			
Study of Bow Shock Energetic Particles, NASA, 5/15/07 - 5/14/10, \$320,000, funded. (Co-I)			
Gyrokinetic Electron and Fully Kinetic Ion Particle Simulation of Collisionless Plasma Dynamics, DOE, 10/01/04 - 09/31/08, \$420,000, funded. (PI)			

Global Hybrid Simulations of the Bow Shock and Its Interaction with Interplanetary Discontinuities, NSF, 6/1/02 - 5/31/06, \$216,000, Funded. (PI)

Solar Wind Ions Acceleration and Transport into the Magnetosphere, NSF, 2/1/03 - 1/31/07, \$50,000, Funded. (Co-I)

Gyrokinetic Electron and Fully Kinetic Ion Particle Simulations of Collisionless Magnetic Reconnection - Code Development, DOE, 5/1/03 - 11/30/03, \$45,000, Funded. (PI)

Global Hybrid Simulation of Magnetic Reconnection at the Dayside Magnetopause, NASA, \$300,000, 2003 - 2008. (PI)

Magnetic Reconnection and the Particle Precipitation across the Magnetopause, NASA, 3/1/99 - 2/28/03, \$186,000, Funded. (PI)

A Simulation Study for the Interaction of Interplanetary Discontinuities and Shock Waves with the Earth's Bow Shock and Magnetopause, NSF, 9/1/98 - 8/31/02, \$197,211, Funded. (PI)

A Simulation Study of Reconnection Layers in the Magnetotail, NSF CAREER Award, 9/1/95 - 7/31/00, \$209,483, Funded. (PI)

Young Investigator Award Program, ONR, 5/1/95 - 4/30/99, \$225,000, Funded. (PI)

#### **Internal Support:**

Intramural Grant Program (IGP) - SPIRIT - Storing Petabytes of Information for Research Into Tomorrow's science, PResearch, PI: J.J. Dong, 2/12 - 2/13, \$150,000, funded.

#### **External/International Research Activities:**

Collaboration with Profs. Xiaogang Wang at Dalian University of Technology and Xiaohua Deng at Wuhan University on simulation and observation of the bow shock and magnetopause, supported by Outstanding Oversea Young Scientist grants, Chinese National Science Foundation, 2003-2005, 2006-2008, 20010-2012.

Collaboration with the Institute of Plasma Physics, Chinese Academy of Sciences, on magnetic fusion research, supported by an Overseas Magnetic Confinement Plasma Physics grant, 2009 - 2012.

**Collaboration with Prof. Liu Chen on GeFi simulation of tearing mode and lower-hybrid drift instabilities, supported by a Chinese National Science Foundation grant, 2013 - 2018.**

**Collaboration with Prof. Quanming Lu at the University of Science and Technology of China on hybrid simulations of the bow shock and magnetosphere, supported as a Changjiang Chair professor from 2012-2015.**

**C. Outreach:**

Supported by the NASA Global Climate Change Education (GCCE) grant, 2009, participated in engaging hands-on inquiry-based science modules for Physics high school science classrooms.

Presentations & demonstrations at Opelika High School, December 1997.

Presentations & demonstrations at Lee/Scott Academy, 1996.

**D. SERVICE:**

**i. Service outside of Auburn (Professional Services):**

NASA Heliophysics Supporting Research (SR) program review panel, 2014.

NASA Proposal Review Panels

NSF Proposal Review Panels

Proposal evaluations for NSF, NASA, and international funding agencies in China and Czech Republic.

Referees to JGR, GRL, PoP, Ann. Geophys., and space plasma physics books/proceedings.

**Program Committee, 1<sup>st</sup> Asian-Pacific Conference on Plasma Physics, 2016-2017.**

**Chief Editor in Space Plasma Physics, Reviews of Modern Plasma Physics (RMPP), since 2015.**

**Editorial Board, Physics of Plasmas, IOP, 2016 -2019.**

**APS-DPP Fellowship Committee, 2009?, 2015.**

Chair, Selection Committee for the Katherine E Weimer Award, APS-DPP, 2014.

Program committee for COSPAR 2013.

**Chair, Cai Shidong Outstanding Ph.D. Thesis Award, China, 2010 2014, and 2016.**

**Chair, Plasma Physics Division, Overseas Chinese Physicist Association, since 2007.**

Program Committee, 2008 Huntsville Workshop, on the Physical Processes for Energy and Plasma Transport across Magnetic Boundaries.

Program Committee, Overseas Chinese Physicist Association, 2002, 2004, and 2006.

**Program Committee for American Physical Society (APS)-DPP Fall Meeting, 2006, 2016.**

Selection Committee for the K.E. Weimer Award, APS-DPP, 2005.

Chair, Selection Committee for the Marshall N. Rosenbluth Outstanding Doctoral Thesis in Plasma Physics Award, APS-DPP, 3/2004.

Selection Committee for the Marshall N. Rosenbluth Outstanding Doctoral Thesis in Plasma Physics Award, APS-DPP, 3/2003.

**ii. Service at Auburn and Outreach:**

**a. Department:**

**Biophysics Faculty Search Committee, 2016-2017.**

AMO Faculty Search Committee, 2014-2015

Graduate Program Officer for international applications, since 2005: Recruit international students.

Graduate Admission Committee, 1995-2000.

First Year Graduate Student Advisor, since 2001.

Undergraduate teaching committees.

Physics Invitational, 1998, 1999, 2000, 2002, 2003, 2005.

Faculty Search Committee, 1995, 1999-2000, 2007, 2012.

Presentations & demonstrations at Opelika High School, December 1997.

Presentations & demonstrations at Lee/Scott Academy, March 1996.

**b. College:**

**Promotion and Tenure Committee, COSAM**

ADR Selection Committee, COSAM. 2014

Dean's Research Award Selection Committees, COSAM

Judge for the Science Olympiad, March 1995, 1996, 1997.  
Judge at the Regional Science Fair, March 1995, 1996,  
1997, 1999, 2000

Dean's Research Award committee, 2008 - 2010.

**c. University:**

**Post Tenure Review Committee, 2016-.**

**Academic Program Review Committee, Auburn Univ.**

**7. MEMBERSHIP AND SERVICE IN SIGNIFICANT PROFESSIONAL ORGANIZATIONS:**

American Geophysical Union

American Physical Society

Overseas Chinese Physicist Association

Appointed member of the Graduate Faculty, Auburn University, since 1995.