



WenLu ZHANG

Professor of Physics

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ACADEMIC RECORD

- Sep 2000 - Jul 2004** Graduate - **Ph.D.** in Plasma Physics, Department of Modern Physics
University of Science and Technology of China
- Sep 1998 - Jul 2000** Graduate - **M.S.** in Plasma Physics, Department of Modern Physics
University of Science and Technology of China
Graduated with academic honors
- Sep 1994 - Jul 1998** Undergraduate - **B.S.** in Plasma Physics, Department of Modern Physics
University of Science and Technology of China
Graduated with academic honors

APPOINTMENTS

- May 2012 - Now** **Professor of Physics**
Institute of Physics, Chinese Academy of Science
- Jul 2008 - Now** **Asst. Project Scientist**
Department of Physics and Astronomy, UC Irvine, US
- May 2010 - May 2012** **CAS¹ 'Hundred Talents Program' Endowed Professor**
Department of Modern Physics, University of Science and Technology of China
- May 2006 - Jul 2008** **Postdoc**
Department of Physics and Astronomy, UC Irvine, US
- Dec 2005 - May 2010** **Assoc. Professor**
Department of Modern Physics, University of Science and Technology of China
- Jul 2004 - Dec 2005** **Lecturer**
Department of Modern Physics, University of Science and Technology of China

HONORS AND AWARDS

- 2010** **CAS 'Hundred Talents Program'**

SERVICES

- 2015 - Now** **Member**
International Tokamak Physics Activity (ITPA)
- 2015 - Now** **Council Member**
Nuclear Fusion and Plasma Physics Division of Chinese Nuclear Society
- 2014 - Now** **Council Member**
Plasma Physics Division of Chinese Physical Society
- 2012 - Now** **Member**
Chinese Tokamak Physics Activity (CTPA)

¹Chinese Academy of Science

2005 - 2014

Secretary
Plasma Physics Division of Chinese Physical Society

TEACHING

- 2010 - 2012** Introduction to Plasma Physics
University of Science and Technology of China
- 2005** Optics
University of Science and Technology of China

GRANTS

- Jan 2017 - Dec 2019** **PI**, *Gyrokinetic Particle Simulations of Alfvén Instabilities Excited by Fast Particles In Fusion Plasmas*
NSFC² General Program, No. 11675256,
620,000CNY
- May 2013 - Jul 2017** **PI**, *Large Scale Simulations of Tokamak Plasmas*
China National Magnetic Confinement Fusion Science Program, No. 2013GB111003,
5,700,000CNY
- Aug 2012 - Jul 2015** **PI**, Start-up Funding from Institute of Physics, CAS
4,500,000CNY
- Jan 2011 - Dec 2013** **PI**, CAS ‘Hundred Talents Program’ Award,
2,000,000CNY
- Jan 2011 - Dec 2013** **PI**, *Gyrokinetic Particle Simulations of Energetic Particle Turbulence and Transport*
NSFC³ General Program, No. 11075159,
500,000CNY
- May 2010 - Apr 2014** **PI**, Start-up Funding for CAS ‘Hundred Talents Program’ Endowed Professor,
1,000,000CNY
- Aug 2009 - Jul 2012** **PI**, *Large Scale Simulations of Tokamak Plasmas*
National Magnetic Confinement Fusion Science Program, No. 2009GB105006,
8,040,000CNY
- Jan 2006 - Dec 2008** **PI**, *Theoretical Research on Hydrodynamic Instabilities in High Energy-Density Plasma*
NSFC General Program, No. 10505021,
260,000CNY

RESEARCH INTEREST

My research interest is to study plasma waves and instabilities, especially turbulence and transport, through analytical approaches and advanced simulations.

³National Natural Science Foundation of China

Selected Publications

Selected Talks

1. **Wenlu ZHANG**, *Gyrokinetic Particle Simulation of Fast Electron Driven Beta-induced Alfvén Eigenmodes*, Invited talk at 1st Asia-Pacific Conference on Plasma Physics, Chengdu, China, September 18 - 23 (2016).
2. **Wenlu ZHANG**, Junyi Cheng and Zhihong Lin, *Gyrokinetic Particle Simulation of Fast Electron Driven Beta-induced Alfvén Eigenmodes*, Talk at 58th Annual Meeting of the APS Division of Plasma Physics, San Jose, California, October 31 - November 4 (2016).
3. Jingbo Lin, **Wenlu ZHANG**, Pengfei Liu and Ding Li, *Toroidal Electromagnetic Particle-in-Cell Code with Gyrokinetic Electron and Fully-kinetic ion*, Talk at 58th Annual Meeting of the APS Division of Plasma Physics, San Jose, California, October 31 - November 4 (2016).
4. Ding Li, Chao Dong and **Wenlu ZHANG**, *Fokker-Planck equation in the presence of a uniform magnetic field*, Talk at 58th Annual Meeting of the APS Division of Plasma Physics, San Jose, California, October 31 - November 4 (2016).
5. **Wenlu ZHANG**, *Gyrokinetic Particle Simulation of Fast Electron Driven Beta-induced Alfvén Eigenmodes*, Talk at 43rd EPS Conference on Plasma Physics, Leuven, Belgium, Jul 4-8 (2016).
6. **Wenlu ZHANG**, *Gyrokinetic Particle Simulation of Fast Electron Driven Beta-induced Alfvén Eigenmodes*, Talk at 16th ITPA Energetic-Particle Topic Group Meeting, ITER Headquarter, St-Paul-Lez-Durance, France, June 27-30 (2016).
7. **Wenlu ZHANG**, *Verification and Validation of Gyrokinetic Particle Simulation of Fast Electron Driven beta-induced Alfvén Eigenmode on HL-2A Tokamak*, Talk at 14th IAEA Technical Meeting on Energetic Particles in Magnetic Confinement Systems, IAEA Headquarter, Vienna, Austria, September 1-4 (2015).
8. **Wenlu ZHANG**, *Energetic Particle Transport by Microturbulence*, Talk at 57th Annual Meeting of the APS Division of Plasma Physics, Savannah, Georgia, November 16-20 (2015).
9. **Wenlu ZHANG**, *Gyrokinetic Simulations of Energetic Particle Turbulence and Transport*, Talk at 13th IAEA Technical Meeting on Energetic Particles in Magnetic Confinement Systems, Beijing, September 17-20 (2013).
10. **Wenlu ZHANG**, *Gyrokinetic Simulations of Energetic Particle Turbulence and Transport*, Talk at 8th International Conference on Computational Physics, HongKong, January 7-11 (2012).
11. **Wenlu ZHANG**, *Gyrokinetic Particle Simulations of Energetic Particle Turbulence and Transport*, Talk at ITPA Energetic-Particle Topic Group Meeting, Daejeon, Korea, October 11-16 (2010).
12. **Wenlu ZHANG**, *Gyrokinetic Particle Simulations of Toroidal Alfvén Eigenmode and Energetic Particle Transport in Fusion Plasmas*, Talk at 37th EPS Conference on Plasma Physics, Dublin, Ireland, Jun 21-25 (2010).
13. **Wenlu ZHANG**, *Gyrokinetic Simulations of Energetic Particle Turbulence and Transport*, Talk at 7th International Conference on Computational Physics, Beijing, China, May 17-20 (2010).
14. **Wenlu ZHANG**, *Gyrokinetic Particle Simulations of Toroidal Alfvén Eigenmode and Energetic Particle Transport in Fusion Plasmas*, Invited talk at International Sherwood Fusion Theory Conference, Seattle, Washington, April 19 - 21 (2010).
15. **Wenlu ZHANG**, *Energetic Particle Transport by Microturbulence*, Conference on Computational Physics, Taiwan, December 15-19 (2009).
16. **Wenlu ZHANG**, *Gyrokinetic Particle Simulation of Particle Instability in Fusion Plasmas*, Invited Talk at US-Japan Workshop on Advanced Simulation Methods in Plasma Physics, Toki, Japan, December 14-16 (2009).
17. **Wenlu ZHANG**, *Energetic Particle Transport by Microturbulence*, Invited talk at 51st APS Annual Meeting of the Division of Plasma Physics, Atlanta, Georgia, November 2-6 (2009).
18. **Wenlu ZHANG**, 21st International Conference on Numerical Simulation of Plasmas, Lisbon, Portugal, October 6-9 (2009).
19. **Wenlu ZHANG**, *Gyrokinetic Particle Simulations of Toroidal Alfvén Eigenmode and Energetic Particle Transport in Fusion Plasmas*, Transport Task Force Workshop, San Diego, California, April 28 - May 1 (2009).
20. **Wenlu ZHANG**, *Transport of Energetic Particles by Microturbulence in Fusion Plasmas*, Talk at 50th APS Annual Meeting of the Division of Plasma Physics, Dallas, Texas, November 17-21 (2008)

21. **Wenlu ZHANG**, *Turbulent Transport of Energetic Particles in Global Gyrokinetic Particle Simulations*, Talk at Transport Task Force Workshop, Boulder, Colorado, March 25-28 (2008).

Journals

1. **Wenlu ZHANG** and Zhihong LIN, *Does the orbit-averaged theory require a scale separation between periodic orbit size and perturbation correlation length?*, Phys. Plasmas **20**, 102306 (2013).
2. Chenxi ZHANG, **Wenlu ZHANG**, Zhihong LIN, and Ding LI, *Comparison of toroidicity-induced Alfvén eigenmodes and energetic particle modes by gyrokinetic particle simulations*, Phys. Plasmas **20**, 052501 (2013).
3. Huasen ZHANG, Zhihong LIN, Wenjun DENG, Ihor HOLOD, Zhixuan WANG, Yong XIAO, and **Wenlu ZHANG**, *Nonlinear dynamics of beta-induced Alfvén eigenmode in tokamak*, Phys. Plasmas **20**, 012510 (2013).
4. **Wenlu ZHANG**, Ihor HOLOD, Zhihong LIN, and Yong XIAO, *Global Gyrokinetic Particle Simulation of Toroidal Alfvén Eigenmodes Excited by Antenna and Fast Ions*, Phys. Plasmas **19**, 022507 (2012).
5. **Wenlu ZHANG**, Zhihong LIN, and Liu CHEN, *Comment on “Electrostatic and magnetic transport of energetic ions in turbulent plasmas”*, Phys. Rev. Lett. **107** 239501 (2011).
6. **Wenlu ZHANG**, Viktor DECYK, Ihor HOLOD, Yong XIAO, Zhihong LIN, and Liu CHEN, *Scalings of Energetic Particle Transport by Ion Temperature Gradient Microturbulence*, Invited Paper For The 50th Annual Meeting of the APS Division of Plasma Physics, Phys. Plasmas **17**, 055902 (2010).
7. Ihor HOLOD, **Wenlu ZHANG**, Yong XIAO, Zhihong LIN, *Electromagnetic formulation of global gyrokinetic particle simulation in toroidal geometry*, Phys. Plasmas **16**, 122307 (2009).
8. Yong XIAO, Ihor HOLOD, **Wenlu ZHANG**, Zhihong LIN, and Scott KLASKY, *Fluctuation characteristics and transport properties of collisionless trapped electron turbulence*, Phys. Plasmas **17**, 022302 (2010).
9. **Wenlu ZHANG**, Zhihong LIN, and Liu CHEN, *Transport of Energetic Particles by Microturbulence in Magnetized Plasmas*, Phys. Rev. Lett. **101**, 095001 (2008).
10. Zhihong LIN, Yasutaro Nishimura, Yong XIAO, Ihor HOLOD, **Wenlu ZHANG**, and Liu CHEN, *Global gyrokinetic particle simulations with kinetic electrons* Plasma Phys. Contr. Fusion **49**, B163 (2007).
11. **Wenlu ZHANG**, Zhihong LIN, Peter H. YOON, and Xueyi WANG, *Two-Fluid Formulation of Lower-Hybrid Drift Instabilities in Current-Sheet Equilibrium with a Guide Field*, Commun. Comput. Phys. **4**, 719-728 (2008).
12. **Wenlu ZHANG**, Zhengwei WU and Ding LI, *Effect of Shear Flow and Magnetic Field on Rayleigh-Taylor Instability*, Phys. Plasmas, **12**, 042106 (2005).
13. **Wenlu ZHANG** and Ding LI, *Evolution of nonlocal ideal helical perturbations in cylindrical plasma*, Phys. Plasmas, **11**, 1987 (2004).
14. **Wenlu ZHANG** and Ding LI, *Evolution of local ideal helical perturbations in cylindrical plasma*, Chinese Phys., **13**, 1500 (2004).
15. Zhengwei WU, **Wenlu ZHANG**, Weihong YANG and Ding LI, *Effect of Magnetic Field and Equilibrium Flow on Rayleigh-Taylor Instability*, Chinese Phys. Lett., **21**, 2001 (2004).