

Wei-Xi LI

Curriculum Vitae

School of Mathematics and Statistics
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Education

BA degree in Mathematics (2003), Wuhan University

PhD (2008), Wuhan University, Thesis adviser: Prof. Hua Chen

Positions

<i>Professor.</i>	Wuhan University, November 2014-Present
<i>Associate Professor.</i>	Wuhan University, November 2012 - October 2014
<i>Lecturer.</i>	Wuhan University, July 2008 - October 2012
<i>Postdoctor.</i>	University of Bologna, February 2012 - January 2013 Mentor: Alberto Parmeggiani
<i>Postdoctor.</i>	Nantes University, January - December, 2011 Mentor: Frédéric Hérau and Xue Ping Wang
<i>Postdoctor.</i>	Lund University, January - December, 2010 Mentor: Nils Dencker
<i>Postdoctor.</i>	Université Paris VI, February -December, 2009 Mentor: Nicolas Lerner

Research Interests

Partial Differential Equations and mathematical physics

- Spectral analysis (Compact resolvent, Fokker-Planck operator, Witten Laplacian, \dots)

- Boundary layer analysis for fluid mechanics equations (Prandtl equation, inviscid limit of Navier-Stokes equation, \dots)
- Regularity of degenerate elliptic equations (Boltzmann equation, Monge-Ampère equations, twisted Laplacians, \dots)

Research Grants

- Fok Ying Tung Education Foundation (No. 151001), 03/2016 - 03/2019
- NSFC for Excellent Young Scholars (No. 11422106), 01/2015 - 12/2017
- NSFC for Young Scholars (No. 11001207), 01/2011 - 12/2013
- NSFC (Tianyuan Mathematics) (No. 10926119), 01/2010 - 12/2010
- Scientific Research Foundation for the ROCS, 01/2014 - 12/2015

Publication

24. Wei-Xi Li and Tong Yang, Well-posedness in Gevrey function space for the three-dimensional Prandtl equations. preprint
23. Wei-Xi Li, Alberto Parmeggiani and Yan-Lin Wang, Global Gevrey hypoellipticity for twisted Laplacian on forms. Preprint
22. Wei-Xi Li, Compactness of the resolvent for the Witten Laplacians. Preprint.
21. Wei-Xi Li, Van-Sang Ngo and Chao-Jiang Xu, Boundary layer analysis for the fast horizontal rotating fluids. preprint
20. Wei-Xi Li and Tong Yang, Well-posedness in Gevrey function space for the Prandtl equations with non-degenerate critical points. preprint
19. Feng Cheng, Wei-Xi Li and Chao-Jiang Xu, Vanishing viscosity of Navier-Stokes flow to ideal flow in Gevrey space. accepted by *Mathematical Methods in the Applied Sciences*
18. Feng Cheng, Wei-Xi Li and Chao-Jiang Xu, Gevrey regularity with weight for incompressible Euler equation in the half space. accepted by *Acta Mathematica Scientia*
17. Wei-Xi Li, Compactness criteria for the resolvent of Fokker-Planck operator. accepted by *Ann. Sc. Norm. Super. Pisa Cl. Sci.*
16. Wei-Xi Li, Di Wu and Chao-Jiang Xu, Gevrey Class Smoothing Effect for the Prandtl Equation. *SIAM J. Math. Anal.* 48 (2016), 1672–1726
15. Wei-Xi Li, Peng Luo and Shuying Tian, L^2 -regularity of kinetic equations with external potential. *Journal of Differential Equations*, 260 (2016) 5894–5911

14. Radjesvarane Alexandre, Frédéric Hérau and Wei-Xi Li, Global hypoelliptic and symbolic estimates for the linearized Boltzmann operator without angular cutoff. Preprint
13. Wei-Xi Li, Global hypoelliptic estimates for fractional order kinetic equation. *Mathematische Nachrichten* 287(2014), 610–637
12. Hua Chen, Wei-Xi Li and Ling-Jun Wang, Regularity of traveling free surface water waves with vorticity. *Journal of Nonlinear Sciences* 23(2013), 1111-1142
11. Wei-Xi Li and Alberto Parmeggiani, Global Gevrey-hypoellipticity for twisted Laplacians. *Journal of Pseudo-Differential Operators and Applications* 4(2013), 279-296
10. Frédéric Hérau and Wei-Xi Li, Global hypoelliptic estimates for Landau-type operator with external potential. *Kyoto Journal of Mathematics* 53 (2013), 533-565
9. Renjun Duan and Wei-Xi Li, Hypocoercivity for the linear Boltzmann equation with confining forces. *Journal of Statistical Physics* 148(2012), 306–324
8. Wei-Xi Li, Global hypoellipticity and compactness of resolvent for Fokker-Planck operator, *Ann. Sc. Norm. Super. Pisa Cl. Sci. . (5) Vol. XI*(2012), 789-815
7. Hua Chen, Wei-Xi Li and Chao-Jiang Xu, Gevrey regularity of subelliptic Monge-Ampère equations in the plane, *Advances in Mathematics* 228(2011) 1816-1841
6. Hua Chen, Wei-Xi Li and Chao-Jiang Xu, Gevrey hypoellipticity for a class of kinetic equations, *Comm. Partial Differential Equations* 36 (2011) 693-728.
5. Hua Chen, Wei-Xi Li and Chao-Jiang Xu, Analytic smoothness effect of solutions for spatially homogeneous Landau equation, *Journal of Differential Equations* 248 (2010) 77-94.
4. Hua Chen, Wei-Xi Li and Chao-Jiang Xu, Gevrey hypoellipticity for linear and non-linear Fokker-Planck equations, *Journal of Differential Equations* 246 (2009), 320- 339
3. Hua Chen, Wei-Xi Li and Chao-Jiang Xu, Gevrey regularity for solution of the spatially homogeneous Landau equation, *Acta Mathematica Scientia* 29(2009), 673-686
2. Hua Chen, Wei-Xi Li and Chao-Jiang Xu, Propagation of Gevrey regularity for solutions of Landau equations, *Kinetic and Related Models* 1(2008), 355- 368.
1. Shaohua Wu, Hua Chen and Wei-Xi Li, The local and global existence of the solutions of hyperbolic-parabolic system modeling biological phenomena, *Acta Mathematica Scientia* 28 (2008), 101- 116.

Student Supervision

- Lv-Qiao Liu, MS 06/2017, PhD student since 09/2017

- Hao Wang, PhD student since 09/2017
- Jin Tan, MS, is taking the Bézout Master's program since 09/2017
- Yan-Lin Wang, MS 06/2017, PhD student at City Univ. of Hong Kong since 08/2017
- Jin-Nan Guo, MS 06/2017
- Wei-Man Xu, MS 06/2017

Invited talks

Conferences and Workshops

- The 15th summer school and conferences on nonlinear PDEs, Xi'an, August 1-3, 2017
- The workshop on PDEs, Guangzhou, June 2-3, 2017
- The Mini Workshop on Boundary Layer Theory, Beijing, December 3, 2016
- Rencontres Rouennaises d'EDP 2016, Rouen, November 3-4, 2016
- First Chinese Czech Conference on Mathematical Fluid Mechanics, Beijing, September 26-30, 2016
- The 14th international conferences on nonlinear PDEs, Harbin, August 1-5, 2016
- The 14th Conference of China Society for Industrial and Applied Mathematics (Section: Mathematical Theory and Numerical Methods for Fluid Mechanics), August 11-14, 2016
- IMS PDE Workshop, Hong Kong, July 15-16 2016
- Workshop on image processing and PDEs, Guangzhou, December 25-26, 2015
- Recent Trends in Nonlinear Elliptic Equations and Nonlinear Analysis, Wuhan, Dec. 21-24, 2015
- 5th China-Japan Workshop on Mathematical Topics from Fluid Mechanics, Wuhan, Nov. 17-22, 2015
- Workshop on Partial Differential Equations and Applications, Guangzhou, October 8-10, 2015
- The 10th International ISAAC Congress, Macau, August 3-8, 2015
- PDE Forum for Youth, Northwest University, Xi'an, May 2-3, 2015
- Workshop on Partial Differential Equations in Geometry and Physics, Sanya, March 9-13, 2015
- International Workshop on PDEs in Fluid Dynamics & Related Models, Shanghai, Nov. 27-30, 2014

- Whu-CityU of Hong Kong Joint Workshop on Mathematics and Applications, Sep. 26-30, 2014
- Workshop on Advances of Nonlinear PDEs, Nanjing, May 23-25, 2014
- Annual meeting of Chinese Mathematical Society, Taiyuan, October 12-14, 2013
- 4th Japan-China Workshop on Mathematical Topics from Fluid Mechanics, Tokyo, 18-20/09, 2013
- Non-selfadjoint Operators and semi-classical analysis, Reims, June 24-25, 2010
- Spectral Instability and Microlocal Analysis, Lund, June 15-17, 2010
- Advanced PDE and Application, Wuhan University, January 8-10, 2010
- Complex Analysis and PDE, Rouen University, Rouen, June 23-26, 2009

Seminar talks

- IMS, the Chinese University of Hong Kong, Hong Kong, August 25, 2017
- Department of Mathematics, City University of Hong Kong, Hong Kong, August 21, 2017
- School of Mathematics and Statistics, Huazhong University of Science and Technology, Wuhan, June 21, 2017
- School of Mathematics and Statistics, Hubei University, Wuhan, March 16, 2017
- School of Mathematical Sciences, South China Normal University, Guangzhou, November 21, 2016
- Institut de Mathématiques, Bordeaux University, Bordeaux, October 26, 2016
- School of Mathematics, South China University of Technology, Guangzhou, June 30, 2016
- Wuhan Institute of Physics and Mathematics, Wuhan, April 13, 2016
- School of Mathematical Sciences, Xiamen University, Xiamen, April 10, 2016
- IMS, The Chinese University of Hong Kong, Hong Kong, March 14, 2016
- Laboratoire de Mathématiques Jean Leray, Nantes University, Nantes, January 20, 2016
- Shenzhen University, Shenzhen, October 20, 2015
- School of Mathematics, South China University of Technology, Guangzhou, October 11, 2015
- School of Mathematics and Computational Sciences, Sun Yat-sen University, October 9, 2015

- Department of Mathematics, City University of Hong Kong, Hong Kong, September 21, 2015
- Department of Mathematics, City University of Hong Kong, Hong Kong, August 14, 2015
- IMS, The Chinese University of Hong Kong, Hong Kong, July 28, 2015
- School of Mathematical Sciences, Capital Normal University, Beijing, June 12, 2015
- IMS, The Chinese University of Hong Kong, Hong Kong, February 5, 2015
- CNSNU, Northwest University, Xi'an, April 20, 2015
- School of Mathematical Sciences, UESTC, Chengdu, October 16, 2014
- IMS, The Chinese University of Hong Kong, Hong Kong, August 25, 2014
- School of Mathematics and Statistics, Wuhan University, March 22, 2013
- Department of Mathematics, City University of Hong Kong, February 27, 2013
- Department of Mathematics, Bologna University, Italy, January 24, 2013
- Department of Mathematics, Bologna University, Bologna, , October 26, 2011
- IMS, The Chinese University of Hong Kong, Hong Kong, September 16, 2011
- Department of Mathematics, Linnaeus University, Växjö, December 3, 2010
- Department of Mathematics, Lund, April 20, 2010