

Curriculum Vitae

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当前研究兴趣/Current Research Interests

Number Theory and Arithmetic Geometry

- Fontaine theory of p -adic representations and (φ, Γ) -modules, and its connection to Iwasawa theory.
- Theory of elliptic curves and its application in cryptography.
- Class groups and class numbers of number fields and function fields.

教育情况/Education

Ph.D. in Mathematics, June 2000, University of Minnesota.

Thesis advisor: Prof. Greg William Anderson.

Thesis title: "The group cohomology of universal ordinary distribution and its application"

M.S. in Mathematics, July 1995, Univ. of Sci. and Tech. of China(USTC), P. R. China.

B.S. in Mathematics, July 1993, USTC, P. R. China.

工作情况/Employment

- Professor, University of Science and Technology of China, 2007-
- Associate professor, Tsinghua University, December 2003-December 2006;
- Lecturer, Tsinghua University, July 2003-December 2003;
- Postdoctoral Fellow, University of Toronto, Advisor: Prof. V. Kumar Murty, July 2000- June 2003.

访问情况/Visiting Positions

- Visiting professor, Erasmus Mundus-ALGANT program, Padova-Leiden-Bordeaux, April-June, 2006, Padova-Paris XI, May-July 2007.
- Visitor, IHES, Bures-sur-Yvette, France, January-June, 2001, January-March 2006, July 2006, November-December 2008.
- Visiting professor, KAIST, Korea, January 2009.
- Visiting scholar, ICTP, Trieste, Italy, April-May 2006, August-September 2009.
- Visiting professor, Mainz, Germany, April-May 2010, January-March 2011.
- Visiting scholar, Purdue University, USA, July 2013-July 2014.
- Visiting professor, Morningside center in Mathematics, CAS, Beijing, Summer, 2007-

- 荣誉/Honors
- 2012 年安徽省教学成果一等奖（排名第二）
 - 2012 年中国科学技术大学教学成果特等奖，排名第二
 - 2017 年中国科学院教学成果二等奖（排名第三）
 - 2017 年宝钢优秀教师奖
 - 2018 年安徽省教学名师

论文/Publications (in general alphabet order)

1. - and Fei Xu, *Riemann-Hurwitz formula in Basic \mathbf{Z}_S -extensions*, Acta Arith. **LXXXI.1** (1997), 1–10.
2. *The group cohomology of universal ordinary distribution and its applications*, Thesis, University of Minnesota, 2000.
3. *The group cohomology of universal ordinary distribution*, J. Reine Angew. Math. **537**(2001), 1–32.
4. *The universal norm distribution and Sinnott's index formula*, Proc. Amer. Math. Soc. **130**(2002), No. 8, 2203–2213.
5. Greg W. Anderson and -, *A note on the cyclotomic Euler systems and the double complex method*, Canad. J. Math. 55, No.4(2003), 673–692.
6. *On the universal norm distribution*, J. Ramanujan Math. Soc. 17, No. 4(2002), 287–311.
7. *The universal Kolyvagin recursion implies the Kolyvagin recursion*, Acta. Math. Sin. (Engl. Ser.) 23, No.7 (2007), 1163–1172.
8. *The Gross conjecture over rational function fields*, Sci. China Ser. A Math. **48**, No. 12 (2005), 1609–1617.
9. Kumar Murty and -, *The growth of Selmer ranks of an abelian variety with complex multiplication*, Pure Appl. Math. Q. 2, No. 2(2006), 539–555.
10. - and Hang Xue, *Class numbers of Cyclic 2-extensions and Gross conjecture over \mathbf{Q}* , Sci. China Math. Vol. 53, No. 9 (2010), 2447–2462.
11. Yiwen Ding and -, *A simple proof of Dieudonné-Manin classification Theorem*, Acta. Math. Sin. (Engl. Ser.) Vol. 28, No. 8 (2012), 1553–1558.
12. -, F. Xu, C. Xing and P. Zhang, *Number Theory and Related Area*, editor, Advanced Lecture in Mathematics, Vol. 27, Higher Education Press and International Press, 2013.
13. *Lectures on p -adic zeta functions and (φ, Γ) -modules*, in *Number Theory and Related Area*, pp. 85–147, 2013.
14. - and Shenxing Zhang, *On non-congruent numbers with 1 modulo 4 prime factors*, Sci. China Math., Vol. 57, No. 3(2014), 649–658.

15. - and Jinbang Yang, *On the cohomology of semi-stable p -adic Galois representations*, C. R. Math. Acad. Sci. Paris Vol. 352(2014), 557–561.
16. - and Zhe Zhang, *Hilbert genus fields of biquadratic fields*, Sci. China Math., Vol. 57, No. 10(2014), 2111–2122.
17. - and Zhe Zhang, *Hilbert genus fields of real biquadratic fields*, Ramanujan J. 37(2015) 345–363.
18. - and Shenxing Zhang, *On second 2-descent and non-congruent numbers*, Acta Arith. 170 (2015), 343–360.
19. - and Jinbang Yang, *Newton Polygons of L functions of polynomials $x^d + ax$* , J. Number Theory 160(2016), 478–491.
20. - and Shenxing Zhang, *Birch’s lemma over global function fields*, Proc. Amer. Math. Soc. 145(2017), 577–584.
21. - and Shenxing Zhang, *Newton polygons of L -functions of polynomials $x^d + ax^{d-1}$ with $p \equiv -1 \pmod d$* , Finite Fields Appl. 37(2016), 285–294.
22. - and Jinbang Yang, *On a conjecture of Wan about limiting Newton polygons*, Finite Fields Appl. 41(2016), 64–71. <https://doi.org/10.1016/j.ffa.2016.05.003>
23. Bei Wang, - and Honggang Hu, *Efficient Pairing Computation on Twisted Weierstrass Curves*, Chinese J. Electronics **27**(2018), 739–745.
24. Songsong Li and -, *Counting the solutions of $\lambda_1 x_1^{k_1} + \cdots + \lambda_t x_t^{k_t} \equiv c \pmod n$* , J. Number Theory **187**(2018), 41–65. <https://doi.org/10.1016/j.jnt.2017.10.017>
25. Yang Liu and -, *On binary quadratic forms modulo n* , Commun. Math. Stat. 7 (2019), no. 1, 61–67.
26. - and Xianhong Xie, *Linear complexity of generalized cyclotomic sequences of period $2p^m$* , Des. Codes Cryptogr. 87 (2019), no. 11, 2585–2596. <https://doi.org/10.1007/s10623-019-00638-5>
27. - and Zheng Xu, *Loops of isogeny graphs of supersingular elliptic curves at $j = 0$* , Finite Fields Appl. 58 (2019), 174–176.
28. Songsong Li, - and Zheng Xu, *Neighborhood of the supersingular elliptic curve isogeny graph at $j = 0$ and 1728*, Finite Fields Appl., January, 2020. <https://doi.org/10.1016/j.ffa.2019.101600>
29. Songsong Li, - and Zheng Xu, *Endomorphism rings of supersingular elliptic curves over \mathbb{F}_p* , Finite Fields Appl., to appear, 2020.

预印本/Preprints (in general alphabet order)

1. Jean-Marc Fontaine and -, *Theory of p -adic Galois representations*, a book in preparation.
2. Jianing Li, -, Yue Xu and Shenxing Zhang, *ℓ -Class groups of fields in Kummer towers*, preprint, 2019.

3. -, Xianhong Xie, Honggang Hu and Ming Mao, *Construction of three classes of Strictly Optimal Frequency-Hopping Sequence Sets*, preprint, 2019.
4. Bei Wang, -, Honggang Hu, Songsong Li and Xiaohan Zhang, *A New Twofold Cornacchia-Type Algorithm for 4-GLV Decompositions on Two Classes of Elliptic Curves*, preprint, 2019.

其他写作/Other Writings

1. The China Legacy of Jean-Marc Fontaine, la Gazette des Mathématiciens No. 162, Octobre 2019, 15-17.
2. 悼念雷诺教授, 2018. (In memory of Professor Michel Raynaud, 2018).
3. (冯克勤, 欧阳毅) 中法数论代数几何合作, 《清华数学 90 年》, 清华大学, 2017.
4. 仿佛来自虚空—亚历山大 • 格洛腾迪克的生平故事, 译自 Allyn Jackson 的著名文章 “Comme Appelé du Néant, As If Summoned from the Void: The Life of Alexandre Grothendieck, Part I, Notices AMS, Vol 51, No. 9; Part II, Notices AMS, Vol 51, No. 10”, 发表于《数学译林》.
5. 黎曼假设有关的数学巨匠和数学进展. 见《代数学 III: 代数学进阶》数字课程网站 (<http://abook.hep.com.cn/1251847>).
6. 艾米 • 诺特小传. 同上.
7. 二次曲线和 p 进数. 同上.
8. Inverse limits and Galois theory. 同上.
9. Introduction to Iwasawa theory.

教学论文论著/Teaching Publications

1. 基于代数类课程教学改革的探索与实践, 《大学数学》Vol. 34, No. 4, 2018 年 8 月。
2. (欧阳毅, 申伊堉) 《代数学 I: 代数学基础》, 高等教育出版社, 2016 年 8 月.
3. (欧阳毅, 叶郁, 陈洪佳) 《代数学 II: 近世代数》, 高等教育出版社, 2017 年 1 月.
4. 《代数学 III: 代数学进阶》, 高等教育出版社, 2019 年 10 月.

学术报告/Presentations (since 2016)

- On a conjecture of Wan, New progress in Number theory in China and Korea 2016, Postech, Pohang, Korea, January 27, 2016.
- Birch's Lemma over global function fields, Xiamen Workshop in Arithmetic Geometry, Xiamen University, Xiamen, July 8 2016.
- Birch's Lemma over global function fields, The 3rd Sichuan-Chongqing Workshop on Number Theory, Changjiang Normal University, Chongqing, December 11, 2016.
- Counting the solutions of $\lambda_1 x_1^{k_1} + \cdots + \lambda_t x_t^{k_t} = c \pmod n$, The 8th Conference on Finite Fields and Their Applications, Beijing, November 7, 2017.

- Masters and progress in mathematics associated to Riemann Hypothesis, 2018 Annual Meeting of Anhui Provincial Mathematical Society, Anhui Jianzhu University, Hefei, October 27, 2018.
- Linear complexity of generalized cyclotomic sequences of period $2p^m$, Workshop in Number Theory and its Applications, National University of Defense Science and Technology, Changsha, November 30, 2018.
- 2-class groups in dyadic Kummer towers, Program on Galois Structures in Number Theory, Number Theory and Related Topics, Harbin Institute of Technology, Harbin, August 12, 2019.

学术会议组织/Conferences Organized

1. (with Keqin Feng, Lei Fu, Jean-Marc Fontaine and Luc Illusie etc.) International conference and summer school on arithmetic geometry and automorphic forms, Tsinghua University and Chern Institute of Mathematics, Beijing and Tianjin, August 2005.
2. (with Fei Xu, Chaoping Xing and Pu Zhang) Number Theory and Related Area, a conference in honor of Professor Keqin Feng, USTC, Hefei and Huangshan, June 7-12 2011.
3. (with Mao Sheng and Kang Zuo) Algebraic and Arithmetic Geometry Conference, USTC, August 23-27, 2013.
4. (with David Harari, Peng Shan and Fei Xu) The 2nd Sino-French Conference in Arithmetic Geometry, Tsinghua Sanya International Math. Forum, Yau Mathematical Sciences Center, Sanya, November 7-11, 2016.
5. Summer School on Mathematical foundation of coding and cryptography, USTC, Hefei, July 17-30, 2016.
6. Summer School on Mathematical foundation of coding and cryptography, USTC, Hefei, July 2-17, 2017.
7. (with Daqing Wan, Shanwen Wang and Huilin Zhu) Xiamen Number Theory Workshop, Xiamen University, Xiamen, March 14-16, 2020.

教学情况/Teaching (since 2016)

- 近世代数 H, 2016 年春
- 代数学, 2016 年秋
- 线性代数 B1, 2017 年春
- 代数学, 2017 年秋
- 编码密码的数学基础, 2018 年春
- 算术代数几何选件, 2018 年秋
- 线性代数 A1, 2019 年春
- 线性代数 A2, 2019 年秋