

CURRICULUM VITAE

Personal Information

- Name: Yulin Cai
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Education Background:

- B.S. Mathematics, Xiamen University, Xiamen, Sep. 2009-Jul. 2013
- M.S. Mathematics, Xiamen University, Xiamen, Sep. 2013-Jul. 2016
- PhD Mathematics, University of Bordeaux, Bordeaux, Sep. 2016-Oct. 2020

Working Exprience:

- Postdoc Mathematics, Westlake University, Hangzhou, Feb. 2021-Apr.2023
- Postdoc Mathematics, University of Regensburg, Regensburg, June. 2023-Nov. 2023

Academic Interests

I am interested in number theory and related subjects. Right now, I am working on non-archimedean Arakelov theory. I am passionate about calculating integral solutions and rational solutions of Diophantine equations, and its connections with other subjects.

Academic Activities

- Reading seminars:
 - Toric Varieties, Université de Grenoble, 2017
 - Abelian Varieties, Université de Bordeaux, 2017
 - Rigid Geometry, Université de Bordeaux, 2018
 - Adic Spaces, Université de Bordeaux, 2018-2019
 - Étale Fundamental Groups, Université de Bordeaux, 2019
 - Class Field Theory, Université de Bordeaux, 2019-2020
 - p -divisible Groups, Université de Bordeaux, online, 2020
 - Moduli Spaces, online, 2021
 - Syzygy, Westlake University, 2022
 - Adelic line bundles on quasi-projective varieties, University of Regensburg, 2023
- Visiting:
 - 16,October - 31,December,2020, Xiamen University, Xiamen, China.
- Invited Talks:
 - Integral points on modular curves, 25,November,2020, Westlake University, Hangzhou, China.
 - δ -forms on Berkovich spaces, 30,April,2022, Anhui Normal University, Wuhu, China.

- δ -forms on Berkovich spaces, 29, June, 2022, Sun Yat-sen University, Guangzhou, China.
- (Series talks) Integral points on modular curves, 28, October, 2022, -11, November, 2022, Beihang University, Beijing, China.

Awards and Honors

- PhD Scholarship of CSC, Sep. 2016-Jul. 2020
- Honourable Mention in the 1st Alibaba Global Mathematics Competition, 2019

Publications and Preprints

1. (joint with Ce Xu) **On harmonic numbers and nonlinear Euler sums**, *Journal of Mathematical Analysis and Applications*, Volume 466, Issue 1, 1 October 2018, Pages 1009-1042,
2. **An explicit bound of integral points on modular curves**, *Communications in Mathematics*, Volume 30(2022), Issue 1, 161-174.
3. **Integral points on the modular curves $X_0(p)$** , *J. Number Theory*, 221(2021), 211-221.
4. **Bound the difference of two singular moduli**, *Mosc. J. Comb. Number Theory*, 10 (2021), no. 2, 95–110.
5. **Intersection theory on non-archimedean analytic spaces**, arXiv preprint arXiv:2301.02629, submitted.
6. **Push-forwards and pull-backs of δ -forms and applications to non-archimedean Arakelov geometry**, arXiv preprint arXiv:2303.04978, submitted.

Working in progress

1. **Explicite Coleman integration for curves over non-archimedean fields** (joint with Alex, Enya, Timo), in progress.
2. **Abstract divisorial spaces and adelic intersection numbers** (joint with Walter Gubler), in progress.
3. **Adelic arithmetic volumes and Hilbert-Samuel formula** (joint with Debam Biswas), in progress.

Dissertations

- **The proof of that $E(A, B)$ is an abelian groups** (in Chinese), bachelor thesis (defended in June 2013), advisor Prof. Yanan Lin.
- **The trivial extensions of monomial algebras** (in Chinese), master thesis (defended in June 2016), advisor Prof. Yanan Lin.
- **Integral points of modular curves, singular moduli and conductor-discriminant inequality**, PhD thesis (defended in July 2020), advisor Prof. Yuri Bilu and Prof. Qing Liu.