Rufei Ren

Curriculum Vitae

Young associate researcher
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Research Interests

Hilbert Modular Forms, Exponential Sums, p-adic analysis, Arithmetic dynamical system

Employment

Young associate researcher, Fudan University, Shanghai, China	2020-present
Visiting Assistant Professor, University of Rochester, NY	2017-2020

Education

Ph.D. Mathematics, University of California, Irvine	2012-2017
B.S. Mathematics, Fudan University	2008-2012

Papers and Preprints

1. Non-linearizability for cubic polynomials of positive characteristic, *preprint*
2. Optimal cycles in ultrametric dynamics and minimally semi-ramified power series(with Juan Rivera-Letelier), *preprint*
3. The slope-invariant of local ghost series under direct sum, *submitted, arXiv:2207.12145*
4. Local Gouvêa–Mazur conjecture, *submitted, arXiv:2206.11577*
5. Generic Newton polygon for exponential sums in two variables with triangular base, *to appear in J. Number Theory*
6. Non-linearizability of power series over a valuation ring with positive characteristic, *to appear in Adv. Math.*
7. Spectral halo for Hilbert modular forms(with Bin Zhao), *Math. Ann.* (2021)**382** 821–899.
8. Primitive prime divisors in the critical orbits of rational polynomials, *Math. Proc. Cambridge Philos. Soc.* (2021)**171**, no. 3, 569–584
9. Generic Newton polygon for exponential sums in n-variable with parallelotope base, *Amer. J. Math.* **142** (2020), no. 5, 1595–1639.
10. Iteration of Polynomials $AX^d + C$ Over Finite Fields, *J. Number Theory* **214** (2020), 326–347.
11. Newton slopes for twisted Artin–Schreier–Witt Towers, *Int. J. Number Theory* **15** (2019), no. 10, 2089–2105.
12. Slopes for higher rank Artin–Schreier–Witt towers (with L. Xiao, Q. Wan, and M. Yu), *Trans. Amer. Math. Soc.* **370** (2018), 641–6432.

Teaching Experience

- Spring 2022, Elementary number theory, Fudan University
- Fall 2021, Calculus A, Fudan University
- Fall 2019, Math 235, Linear Algebra, University of Rochester
- Spring 2019, Math 236, Introduction of Algebra, University of Rochester
- Spring 2018, Math 236, Introduction of Algebra, University of Rochester
- Spring 2018, Math 162, Calculus II, University of Rochester
- Fall 2017, Math 141, Calculus I, University of Rochester
- Fall 2017, Math 165, Differential equation with linear algebra, University of Rochester

Academic Service

- Reviewer for Journal of Number Theory 2017–present
- Reviewer for Bulletin of London Mathematic Society 2019–present
- Co-organize the special session on p-adic Analysis in Number Theory at AMS Sectional Meeting, Binghamton University Oct 2019
- Co-organize the p-adic analysis study group, University of Rochester Feb 2020

Talks

- Research Conference on elliptic curves, modular forms, and related topics, U. Connecticut, 8/2016
- Number Theory Seminar, Fudan University, 8/2016
- AMS Sectional Meetings, University of St. Thomas (Minneapolis campus), 10/2016
- Number Theory Seminar, UCSD, 11/2016
- Number Theory Seminar, University of Rochester, 9/2017
- AMS Sectional Meeting, University at Buffalo, 9/2017
- Frontier Innovation Forum, Sichuan University, 5/2018
- Number Theory Seminar, UC Irvine, 9/2018
- Mathematics and its Multidisciplinary Frontier Innovation Forum, Capital Normal University, 5/2019
- AMS Sectional Meeting, Binghamton University, 10/2019
- The 4th Nanjing University Young Scholar Forum, Nanjing University, 12/2019
- Fudan-Guanghua International Forum for Young Scholars, Fudan University, 12/2019

Conferences and Summer Schools Attended

- Fudan-Guanghua International Forum for Young Scholars, Fudan University, 12/2019
- The 4th Nanjing University Young Scholar Forum, Nanjing University, 12/2019

- AMS Sectional Meeting, Binghamton University, 10/2019
- Frontier Innovation Forum, Sichuan University, 5/2018
- AMS Sectional Meeting, University at Buffalo, 9/2017
- Southern California Number Theory Day, UC Irvine, 10/2016
- Connecticut Summer School in Number Theory, U. Connecticut, 8/2016
- The p-adic Langlands program and related topics, Indiana U., Bloomington, 5/2016
- Southern California Number Theory Day (John Tate 90th birthday), UCSD, 5/2015
- Southern California Number Theory Seminar, UCI, 10/2014
- Automorphic forms, Shimura varieties, Galois representations and L-functions (Michael Harris 60th birthday), MSRI, Berkeley, 12/2014
- p-adic variation in number theory (Glenn Stevens 60th birthday), Boston U, 6/2014
- Arithmetic of p-adic modular forms, L-functions, Shimura varieties and Galois representations (Haruzo Hida 60th birthday), UCLA, 6/2012