

Work Experience

- 2023–Present **Peking University**, Beijing International Center for Mathematical Research.
Postdoc, Mentor: Liang Xiao
- 2020–2021 **Fudan University**, School of Mathematical Sciences.
Research Assistant, Mentor: Yijun Yao

Education

- 2021–2023 **Tsinghua University**, Beijing, China.
Ph.D. Mathematics, Advisor: Pin Yu
- 2014–2020 **Tsinghua University**, Yau Mathematical Sciences Center, Beijing, China.
M.S. Mathematics, Advisor: Pin Yu
- 2010–2014 **Tsinghua University**, Beijing, China.
B.S. Mathematics

Research Interests

I mainly work on transcendental number theory. I am interested especially in odd zeta values $\zeta(2k+1)$, p -adic odd zeta values $\zeta_p(2k+1)$ and multiple zeta values $\zeta(k_1, k_2, \dots, k_r)$.

Publications

5. Li Lai,
On the irrationality of certain 2-adic zeta values,
Int. J. Number Theory 21 (2025), no. 1, 207–235.
arXiv:2304.00816
4. Li Lai, Jiong-Yue Li and Pin Yu,
On the rigidity of stationary charged black holes: small perturbations of the non-extremal Kerr-Newman family,
J. Differential Geom. 125 (2023), no. 3, 553–612.
arXiv:1911.10560
3. Steven Charlton, Herbert Gangl, Li Lai, Ce Xu and Jianqiang Zhao,
On two conjectures of Sun concerning Apéry-like series,
Forum Math. 35 (2023), no. 6, 1533–1547.
arXiv:2210.14704
2. Li Lai and Li Zhou,
At least two of $\zeta(5), \zeta(7), \dots, \zeta(35)$ are irrational,
Publ. Math. Debrecen 101/3–4 (2022), 353–372.
arXiv:2103.00904
1. Li Lai and Pin Yu,
A note on the number of irrational odd zeta values,
Compos. Math. 156 (2020), no. 8, 1699–1717.
arXiv:1911.08458

Preprints

8. Li Lai, Cezar Lupu and Johannes Sprang,
On the irrationality of certain p -adic zeta values,
arXiv:2505.23088
7. Li Lai and Jia Li,
A partial result towards the Chowla–Milnor conjecture,
arXiv:2505.12687
6. Li Lai, Johannes Sprang and Wadim Zudilin,
A note on the irrationality of $\zeta_2(5)$,
arXiv:2505.05005
5. Li Lai,
A note on the number of irrational odd zeta values, II,
arXiv:2501.05321
4. Li Lai,
Small improvements on the Ball–Rivoal theorem and its p -adic variant,
arXiv:2407.14236v2
3. Li Lai and Johannes Sprang,
Many p -adic odd zeta values are irrational,
to appear in Michigan Math. J.,
arXiv:2306.10393
2. Li Lai, Cezar Lupu and Derek Orr,
Elementary proofs of Zagier’s formula for multiple zeta values and its odd variant,
to appear in Proc. Amer. Math. Soc.,
arXiv:2201.09262
1. Li Lai,
On the largest prime divisor of $n! + 1$,
arXiv:2103.14894

Awards and Honors

- 2012 Nianzeng Sun Mathematical Analysis Award (at Tsinghua University)
- 2010 51st International Mathematical Olympiad: Gold Medal

Teaching

- Fall 2024 Rational Functions and the Irrationality of Odd Zeta Values, Mini Course, Peking University
- Spring 2024 Advanced Mathematics B (2), Peking University
- Spring 2021 Rational Functions and the Irrationality of Odd Zeta Values, Short Course, Fudan University

Seminar (Co)Organized

Fall 2021–Spring
2022

Tsinghua-BIMSA Learning Seminar on Multiple Zeta Values, Tsinghua University

Talks

- April 3, 2025 Southeast University
Small improvements on the Ball-Rivoal theorem and its p -adic variant
- September 7, 2024 Southeast University
A slight improvement on the Ball-Rivoal theorem
- February 16, 2024 The 17th Young Mathematicians Conference on Zeta Functions
At least two of $\zeta(5), \zeta(7), \dots, \zeta(35)$ are irrational
- August 5, 2023 Zhejiang Sci-Tech University
Many p -adic odd zeta values are irrational
- May 27, 2023 Anhui Normal University
On the irrationality of certain 2-adic zeta values
- April 5, 2023 BICMR Number Theory Seminar
On the irrationality of certain 2-adic zeta values
- January 9, 2023 East Asia Core Doctoral Forum in Mathematics (Online)
At least two of $\zeta(5), \zeta(7), \dots, \zeta(35)$ are irrational
- August 8, 2022 Conference on MZVs and Related Topics (Online)
Linear forms in Riemann zeta values and MZVs
- July 12, 2022 BIMSA-YMSC Tsinghua Number Theory Seminar (Online)
Elementary proofs of Zagier's formula for multiple zeta values and its odd variant
- March 21, 2022 Jiangxi Normal University
At least two of $\zeta(5), \zeta(7), \dots, \zeta(35)$ are irrational
- March 12, 2022 Anhui Normal University
Elementary proofs of Zagier's formula for multiple zeta values and its odd variant
- January 7, 2022 Learning Seminar on Multiple Zeta Values, YMSC&BIMSA
Linear forms in Riemann zeta values and MZVs
- June 27, 2020 Webinar on APDE (Online)
Recent progress on the irrationality of $\zeta(2k+1)$.

Other Experiences and Activities

- 2017 Finisher of Columbia168 ULTRA-TRAIL® THREE GORGES (168 km trail running)
- Spring 2013 Exchange student at École Normale Supérieure, Paris, France

CV updated: 2025-5-30