Li Lai

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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, p-adic zeta values and multiple zeta values.

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 $\zeta(5), \zeta(7), \ldots, \zeta(35)$ 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

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

2010 51^{st} 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

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 $\zeta(5), \zeta(7), \ldots, \zeta(35)$ 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 $\zeta(5), \zeta(7), \ldots, \zeta(35)$ 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 $\zeta(5), \zeta(7), \ldots, \zeta(35)$ 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

Spring 2013 Exchange student at École Normale Supérieure, Paris, France

CV updated: 2025-3-18